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Volume 91 Number 18

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

EVERY ton of steel tapped from open-hearth furnaces and poured from bessemer converters in the third quarter put producers $17.53 deeper in the red! If the experience of ten leading producers, representing 82 per cent of the steelmaking capacity of the country be accepted as typical, a deficit of $45,570,372 for the entire industry in that period is indicated (p. 11). For three consecutive quarters production has been declining and losses growing, the deficit per ton of ingots mounting from $7.72 in the first quarter to $13.78 in the second to $17.53 in the third. For these ten producers, aggregate losses in the first nine months total $98,628,902, contrasted with a net profit of $10,411,574 in the corresponding period of 1931.

Election an Increasing Hazard for Markets

But deficit or no, the industry is marching on. Through the markets, a moderate leveling-off process is apparent (p. 35), yet there are elements of strength and a general conclusion that the industry is easing into another slump is not warranted. The election unquestionably has engendered some uncertainty and is holding back some business. Prices are a degree softer. . . . At 19½ per cent, steelmaking operations (p. 43) are wobbly, but a rise at Cleveland warded off a slip in the week ended Oct. 29, and may perform a similar service this week. . . . News from the Continent is more encouraging (p. 49). In general, prices are rising and demand expanding, but Manchurian iron is plaguing Germany and Holland as well as our Atlantic seaboard.

Will Utilize Tariff Law to the Limit

To prevent this improvement abroad being made at the expense of American interests, the administration at Washington is more assiduous in invoking the protection afforded by the tariff law (p. 13). Foreign manganese, long the bane of domestic producers, is formally suspected of being dumped and its appraisement withheld, impeding further importations. By the same process, receipt of certain foreign steel products is being handicapped. Taking a personal hand in the matter, the President proposes that the tariff commission reopen its investigation of iron and steel products and utilize the flexible provisions of the law to offset depreciation of foreign currencies.

California Demands "Native" Cable for Bridge

What has the practical effect of a tariff is the sentiment created in California against placing the contract for 28,000 tons of steel cable for the Golden Gate bridge with the low; eastern bidder instead of a California maker. The eastern manufacturer, however, agrees (p.

Arc welding steel liner plates in 21-mile New York water tunnel, using Lincoln Electric Co. equipment. Liners are 1-inch plates, three forming a 20-foot circle. Patrick McGovern Inc. is the contractor

52) to erect a plant at San Francisco for this purpose. . . . The British, too, are becoming adept at the tariff game, and following the adoption of the new Canadian duties, raising a substantial barrier to American imports, England is extending (p. 49) her 33 1/3 per cent tariff two years. . . . Protection against the present ruinous influx of foreign goods is one thing, a long-range tariff policy another, industry is learning (p. 18). And a depression is usually not propitious for a long view.

Alien Tin Plate Hits Labor Hard

A large manufacturer of tin plate, aroused by imports, maintains (p. 10) that every ton brought in costs domestic steel mill labor $1200 in labor and displaces 350 tons of domestic material. . . . To intrench itself, the tin plate industry is constantly warring on costs, one new weapon being the automatic catcher (p. 21), saving as high as $5 per ton on sheets as well as tin plate. These installations, most effective on 2-high mills for pack rolling, impose severe requirements on motors and controls. . . . But industry willingly increases its labor charge when market conditions warrant, and bar mill wages are being advanced (p. 16) for the first time since 1928 as the result of a higher bar iron price.

Teardrop Auto Bodies Call for Wider Sheets

Sheet mills benefit from the trend toward the teardrop style of body for the new automobile models now being put in production, the requirement being for much wider material (p. 17). November, incidentally, gives indications of arresting the decline in automobile production, with Chevrolet, Plymouth and Buick getting off to an early start. . . . Stainless sheets make possible the desirable light weight of the new rail-motor car (p. 13) just completed for the Reading railroad. . . . Stainless clad sheets and plates, with 18-8 steel comprising as little as 10 per cent of the total thickness, will be rolled (p. 26) by a prominent manufacturer.

First Cost Not Last in Furnace Bottoms

Variations in the cost of open-hearth furnace bottoms may be only 12 per cent, but the spread in operating costs may be 300 per cent, emphasizing (p. 24) the importance of design. . . . Welded steel open-hearth charging boxes are successfully standing the test of service, the experience (p. 28) of an eastern steelworks with 70 in two and one-half years developing no replacement or maintenance charges. . . . Better pig iron results when steel scrap up to 10 per cent is charged into the blast furnace, one authority states (p. 26). Alloy scrap is not excluded.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of* STEEL *or of its editors.

Racketeering in Building Construction

To the Editor:

We concur fully in the viewpoint expressed in your editorial in the Oct. 10 issue entitled "Who Benefits from Profitless Building Construction?." It is a deplorable fact that under present conditions, the sub-contractors on the majority of building projects do not have even a fighting chance for profits.

In our opinion legislation such as that proposed in the Goss-Bingham bill, which aims to curb juggling of bids by ruthless general contractors, would be a step in the right direction. However, this is only one detail in a situation that is growing worse steadily. Ultimately it will be found that the only sure remedy lies in a complete revamping of methods and functions in the building industry, which will stamp out racketeering.

DISGUSTED FABRICATOR

Pennsylvania

To the Editor:

The editorial in the Oct. 10 issue on profitless building construction is timely. Much of the public work is going at ruinous prices because unscrupulous individuals —lacking adequate experience but endowed with unlimited nerve—are chiseling into the building field.

Cannot the structural steel industry, with the support of the steel producing industry, bring enough pressure to bear so that steel fabricators can negotiate contracts direct instead of through general contractors who in many cases are in reality only brokers of contracts?

STEEL CONSTRUCTOR

New York

Wages in Carload of Tinplate

To the Editor:

Consider what it takes to make a carload of tinplate with a net weight of 50 tons. It takes 55.80 gross tons of sheet bar, 65.60 gross tons of ingots, 42.27 gross tons of pig iron, 42.27 net tons of coke, 85 gross tons of iron ore, 27 gross tons of limestone, 30 gross tons of scrap, 160 net tons of coal, 2.5 net tons of sulphuric acid, 1,000 pounds of middlings and low grade flour, $4 worth of cotton cloth in discs, 2,500 feet of lumber and 66 gallons of lubricating oil.

All of this totals 350 tons of materials to make 50 tons or one carload of tinplate. There is $1,200 in wages paid out in Weirton alone for the manufacture of this tinplate. Think of all the other wages paid to miners, farmers, cotton growers, lumber men, railroaders and others who are given employment in the collection, manufacture and transportation of these raw materials. Then you see that it is important that we do not lose even a carload of tinplate to foreign companies.

—From an address at Weirton, W. Va. by John C. Williams, vice president, National Steel Corp.

"No Cure, No Pay"

To the Editor:

There are many idle engineers. Why wouldn't it be a good thing to suggest to them that they go to the managers of companies and say, "Let me look over your property and if I can show you a profitable method of rearrangement or improvement you will pay me a small percentage of the savings resulting from my ideas? If you don't do anything about my suggestions there will be no charge."

E. C. H.

Chicago

Steel Losses Mount in Third Quarter to $17 Ton of Ingots

TEN important producers of steel, including the seven largest and representing 55,447,000 tons or 82 per cent of the country's steel ingot capacity, piled up an aggregate deficit of $37,367,705 in the third quarter.

Assuming that the losses of these ten producers are typical, the total deficit indicated for the steel industry in the third quarter is $45,570,372. An exact comparison for these ten producers for the second and first quarters is not yet available, but a similar computation for practically the same companies and related to the industry as a whole, gave a deficit of $44,689,303 in the second quarter and $33,385,696 in the first quarter.

In the third quarter, output of open-hearth and bessemer steel ingots was 2,599,996 gross tons, making an average loss per ton of ingots of $17.53. Ingots not being sold in the open market, there is no quotation for them, but the least-processed semifinished material is quoted at $26, Pittsburgh, Youngstown and Cleveland, and $28 at Chicago.

In the second quarter when production of ingots was a little higher at 3,242,555 tons, the average loss per ton was $13.78, and in the first quarter with production at 4,326,214 tons the average deficit was $7.72 per ton.

There is a variable which would tend to soften the showing of the third quarter slightly. Because some ingots have been taken out of stock, production and shipments of finished material were fractionally greater than actual output of ingots would indicate, but this would take off only a few cents.

The ten producers recording an aggregate deficit of $37,367,705 in the third quarter went into the red to the extent of $98,628,902 in the first nine months of 1932, which compares with a net profit of $10,411,574 in the corresponding period of 1931.

U. S. Steel Curbs Loss; Pays Preferred Dividend

DECLARATION of the full quarterly dividend of $1.75 on the preferred stock of the United States Steel Corp. is regarded both as a declaration of confidence that the business situation is improving and as a gesture toward bolstering this recovery.

This dividend, amounting to $6,304,919, was not earned, the deficit prior to the dividend being $20,871,708.

As the statement on page 12 shows, the deficit from operations was $15,155,072, which was swelled by $5,716,637, which is the proportion of overhead expense of the Lake Superior iron ore properties and Great Lakes transportation service, normally charged against ore.

Disclosing a slight but steady improvement in production, the Steel corporation reports that its ingot operation in July was 11.8 per cent of capacity, which was increased to 12.1 in August, to 16.2 in September and for the first half of October was 16.6 per cent. Shipments of finished products were slightly larger than production, as total inventories have been reduced $36,000,000 since Jan. 1.

On Sept. 30, the cash balance of the Steel corporation was $82,000,000, compared with $84,509,000 on Jan. 1, and the market value of its government securities Sept. 30 was $48,773,000, compared with $72,958,000 on Jan. 1.

Bethlehem Deficit Grows; Operations Showing Gain

NET loss of the Bethlehem Steel Corp., Bethlehem, Pa., in the third quarter, after interest, taxes, depreciation, depletion, etc., was $5,425,724, a slight increase over the $4,671,266 deficit of the second quarter, and more than three times the net loss of $1,502,002 in the September quarter of 1931.

For nine months, the net loss of Bethlehem has been $13,782,759,

Third Quarter Showing of 10 Producers Indicates $45,570,372 Industry Deficit

Deficit, except where asterisk denotes profit

	Third quarter 1932	Second quarter 1932	9 months 1932	9 months 1931	Annual steel ingot capacity gross tons
United States Steel Corp.	$20,871,709	$20,452,173	$54,542,431	$17,343,543*	27,630,000
Bethlehem Steel Corp.	5,425,724	4,671,266	13,782,753	1,892,683*	9,457,000
Republic Steel Corp.	3,419,353	2,744,826	8,640,472	5,512,975	4,848,000
Jones & Laughlin Steel Corp.	1,682,919	2,110,851	6,192,859	733,511	3,420,000
Youngstown Sheet & Tube Co.	3,241,444	3,288,861	9,588,038	3,545,071	3,240,000
National Steel Corp.	155,075 *	560,599*	1,308,874*	3,774,610*	2,232,000
Inland Steel Co.	768,588	619,982	2,209,111	1,496,796*	2,000,000
Wheeling Steel Corp.	775,353	686,324	2,090,300	1,935,755	1,500,000
Colorado Fuel & Iron Co.	1,225,264	795,190	2,419,734	1,585,527	840,000
Gulf States Steel Co.	112,426	215,455	472,078	783,219	280,000
Totals	$37,367,705	$35,024,329	$98,628,902	$10,411,574*	55,447,000

Steel ingot producing capacity of the United States as of Dec. 31, 1931, was 67,473,630 gross tons. Producers represented above have combined capacity of 55,447,000 tons, or 82 per cent of the country's total. Relating their losses to total capacity, a loss of $45,570,372 for the entire industry is indicated. In the third quarter ingot production was 2,599,996 tons.

PRODUCING PIG IRON

	Third quarter 1932	Second quarter 1932	9 months 1932	9 months 1931	Annual pig iron capacity gross tons
Interlake Iron Corp.	$338,701	$574,734	$1,304,930	$505,032	1,035,750
Virginia Iron, Coal & Coke Co.	23,894	17,914	52,585	85,317*	260,000

*Net profit.

United States Steel Corporation Deficit Up Fractionally

	Third Quarter 1932	Second Quarter 1932	Third Quarter 1931
Total earnings	†$4,474,719	†$3,362,736	$9,181,091
Less depreciation, depletion, etc.	9,356,848	9,872,733	11,792,834
Net income	†13,831,567	†13,235,469	†2,611,743
Less bond interest	1,323,505	1,329,544	1,362,092
Balance	†15,155,072	†14,565,013	†3,972,835
Add Special income	.....	.....	7,160,966
Minus special writeoff	5,716,637	5,887,160	.....
Total	†20,871,709	†20,452,173	3,187,131
Dividends:			
Preferred	6,304,919	6,304,919	6,304,919
Common	.....	.....	8,704,583
Surplus	†27,176,628	†26,757,092	†11,822,371

†Deficit.

compared with net income of $1,892,683 in the corresponding 1931 period.

September showed the first improvement in operations and October is continuing this gain at about the same rate as September, said E. G. Grace, president.

Operations of Bethlehem averaged 13.3 per cent in the third quarter and at present are at about 15. Orders on hand Sept. 30 totaled $23,598,882, against $28,724,004 on June 30.

Republic Cash Is Greater; Girdler Sees Improvement

Republic Steel Corp., Youngstown, O., in the third quarter increased its cash balances $355,463, reduced its notes and accounts payable $567,445, and lowered its outstanding funded indebtedness $802,400.

For the third quarter its net loss was $3,419,353, compared with $2,744,826 in the second quarter.

"It is gratifying to observe that there was an improvement in September and that to date there is further improvement in October which we have every reason to believe will be maintained in November," states T. M. Girder, chairman.

"It is believed that the benefits of the constructive measures inaugurated by the federal administration are evident in this upturn."

Inland Steel Loses More

Inland Steel Co., Chicago, for the third quarter had net earnings from operations, after administration, repairs and maintenance, of $347,852 but after deducting $1,116,440 for interest, depreciation and depletion the net loss for the quarter is $768,588. In the second quarter the net loss was $619,982. For the first nine months of 1932 the deficit of Inland is $2,209,111, compared with a net profit of $1,496,796 in the same period of 1931.

J & L Cuts Loss in Third Quarter; Pays on Preferred

Jones & Laughlin Steel Corp., Pittsburgh, reported the smallest net loss of any quarter in 1932 in the three months ended Sept. 30. Net loss was $1,682,919 in the third quarter, against $2,110,851 in the second quarter and net loss of $934,352 in the third quarter of 1931.

Total charge to surplus in the third 1932 quarter was $2,123,273 after payment of preferred dividends, against comparable loss of $2,697,990 in the second quarter.

Operating loss in the quarter just ended was $412,423 which, less depreciation of $1,159,984 and bond interest of $110,512, resulted in loss of $1,682,919. Operating loss in the second quarter was $832,732.

Nine months' net loss for 1932 is $6,192,859, and after payment of preferred dividends, $8,247,845. Net loss over the same nine months last year was $733,511 and after preferred and common dividends, $4,680,471.

Dividend of 75 cents on the cumulative 7 per cent preferred stock will be paid Jan. 2, to holders of record, Dec. 13.

National Earns 7c a Share

National Steel Corp., Pittsburgh, earned $155,075, after all charges and federal tax, in the third quarter, equivalent to 7 cents a share. This compares with a net profit of $560,599 in the second quarter.

For nine months ended Sept. 30, earnings of National, after all charges and federal tax, totaled $1,308,874, compared with $3,774,610 in the corresponding 1931 period.

According to E. T. Weir, chairman, net earnings of the corporation in 1932 would exceed the year's dividend requirements of 75 cents a share.

Youngstown Pares Deficit

Youngstown Sheet & Tube Co., Youngstown, O., reduced its net loss from $3,288,861 in the second quarter to $3,241,444 in the third quarter. Its cash and government securities as of Sept. 30 totaled $15,668,232, a slight increase over the $15,060,247 as of June 30. Current ratio of assets to liabilities is 12.43 to 1, against 11.72 to 1 on June 30.

□ □ □

Wheeling Steel Corp., Wheeling, W. Va., reports net loss of $775,353 for the third quarter compared with $686,324 in the preceding quarter and $718,927 in the third quarter of 1931. Third quarter 1932 profit from operations was $1,661,231. Idle plant charge was $972,055 and depreciation $873 196. Income from investment of $317,726 almost balanced company's bond interest of $383,458.

□ □ □

Gulf States Steel Co., Birmingham, Ala., reports net loss of $112,426 in the third quarter, compared with a loss of $215,455 in the second quarter and loss of $262,535 in the third quarter of 1931. Loss for the first nine months was $472,078, against a loss of $783,219 in the first nine months of 1931.

Third Quarter Costs Bethlehem over $5,000,000

	Third Quarter 1932	Second Quarter 1932	Third Quarter 1931
Total income of the corporation and its subsidiary companies	*$ 541,756	$ 271,174	$3,954,960
Less interest charges	1,697,488	1,706,129	1,930,181
Balance	*$2,239,244	*$1,434,955	$2,024,779
Less provision for depletion and depreciation	3,186,480	3,236,311	3,526,781
Net income for the period	*$5,425,724	*$4,671,266	*$1,502,002
Less dividend declared on preferred stock	.....	.....	1,750,000
Common dividend	.....	.....	1,600,000
Total	.....	.....	3,350,000
Deficit	$5,425,724	$4,671,266	$4,852,002

*Deficit.

Bonds Raise Bar to Dumping; R. F. C. Loans for Pipe, Cars

WASHINGTON—Moving rapidly to stop dumping of foreign iron and steel and allied products, the customs bureau of the treasury department has restored the regulation requiring all importers of steel to furnish additional bonds before imports will be cleared.

A previous regulation requiring extra bonds was imposed three weeks ago, but was withdrawn because of the provision of the tariff law requiring a notice of suspected dumping as a prior condition.

F. X. A. Eble, commissioner of customs, has notified all collectors to withhold appraisement on all shipments of manganese ore from Russia, Brazil, British India and the Gold Coast of Africa. In his official statement, Commissioner Eble says:

"On Oct. 22 there was held in the bureau of customs a hearing on the question of dumping of manganese ore into the markets of the United States from the Union of Soviet Socialist Republics, Brazil, British India, and the Gold Coast of Africa. This hearing was attended by the appraisers of merchandise at Philadelphia and Baltimore, and they expressed the opinion that the evidence of sale of the merchandise at less than its fair value submitted at this hearing was sufficient, in their judgement, to justify the withholding of appraisement pending investigation to determine the facts.

"In view of the foregoing you are requested to withhold appraisement on all shipments of manganese ore (metallic) arriving at your port from any of the countries or places mentioned above."

Says Manganese Undercuts $35

Such an order was requested by J. Carson Adkerson, president, American Manganese Producers association, who contended that Soviet manganese ore is sold in the United States at $8 to $9 per ton, including insurance and freight to the Atlantic seaboard. There is a duty of $11.20 per ton, the freight rate to Pittsburgh is $2.52, and the ore is sold in the Pittsburgh district at about $21.50 per ton, compared with an actual cost of production in the United States of $30 to $35 per ton. Complete paralysis of the American industry was claimed by Mr. Adkerson.

Dumping of wire netting from Germany, Belgium, France and Luxemburg is suspected and appraisements also are to be withheld, according to the customs bureau. Claims that wire netting sold for domestic consumption in Germany is dissimilar to netting exported to the United States are rejected by Commissioner Eble.

Frank Dow, acting customs commissioner, Oct. 28 notified collectors to add the Saar basin to the list of countries, including France, Belgium, Germany and Luxemburg, from which appraisements on various imported steel products are to be withheld. This is to be done pending the result of investigations as to foreign market values, which has been authorized.

Benjamin H. Schwartz, director general, Insitute of Scrap Iron and Steel, Oct. 28 supported the proposal of the American Iron and Steel institute for an antidumping order on finished steel.

Domestic steel interests at the recent antidumping hearing before the bureau of the customs presented evidence either intentionally misleading or those presenting the facts were uninformed, George E. Dix, of New York, representing the Steel Union Inc., told the bureau when importers of steel were heard in rebuttal.

He charged that domestic steel producers "cannot come into court with clean hands as regards dumping," for they dump their surplus in foreign markets. He stated that figures which steel producers had given to the bureau were for 1931, when no charge of dumping was made.

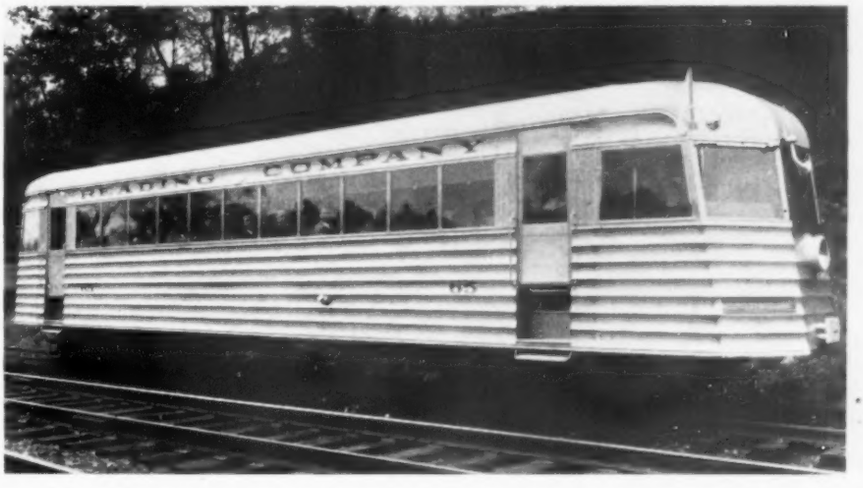
Attention was also called by Mr. Dix to the fact that both the Bethlehem Steel Corp. and the United States Steel Corp. use a great deal of imported iron ore. This amounts, during the course of the year, he said, to many thousands of tons. He also claimed that Buffalo plants are dumping large quantities of pig iron in the territories of eastern furnaces.

There is no such thing as dumping, said Mr. Dix, unless injury can be proved and this has not been done, he stated. He claimed further that American steel producers are dumping abroad by selling below prices obtained in the United States markets. He called attention further to the fact that American steel producers furnish at least 98 per cent of the home consumption.

Says Luxemburg Must Export

E. Leon, of the Amerlux Steel Products Corp., representing Luxemburg interests, stated that Luxemburg is practically a free trade country and that the steel industry there only receives about a 5 per cent protection. Exports of that country, he stated, are the very life blood of the steel industry as there is practically no home market. Belgium is considered the home market for Luxemburg steel, he stated. Steel is being sold in Belgium by the Luxemburg interests, he stated, for less than in the United States.

William Manealoff, of Manealoff & Co., New York, steel importers, said that during July, August and part of September he had been abroad to see if there was anything in the cry



STAINLESS STEEL, PNEUMATIC TIRES, DIESEL POWER: These three features characterize the first rail car of this type in America, carrying 47 passengers, just put in service by the Reading Co. It weighs one-third as much as a standard railroad coach and has speed of 50 to 55 miles an hour. No finish is applied to the exterior, the stainless steel surface being sufficient ornament. Windows do not open, air being conditioned. Diesel engine, batteries, control mechanism and motor are mounted in the trucks. The car operates from either end. Tires carry 95 pounds of air pressure. The car is Budd-Micheline construction, by E. G. Budd Mfg. Co., Philadelphia, and motor, generator and other electric equipment are by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

of steel dumping in the United States and he had found none. Steel is being sold abroad for less than here, he claimed. Both he and Joseph J. Simon, of Simon Mills Inc., also of New York, complained about surety companies asking for suspected dumping bonds amounting to 150 per cent of the value of the shipment, and this, they stated, must be in actual cash or in liberty bonds.

Others who opposed issuance of a dumping order included H. C. Cortner, of the Ferro-Stahl Co., New York; J. C. Devereaux, American Steel Export Co. Inc., New York; B. Hoersgen, Seamless Tube Co., New York and Pittsburgh; and Albert Leo, American Petrometal Co., New York.

□ □ □

The tariff commission is expected shortly to act upon the personal recommendation of the President that it reopen its inquiries into iron and steel production costs under the flexible provisions of the tariff act, in the light of further depreciation of foreign currencies.

To the tariff commission the President sent a list of products affected by the foreign currency situation and a list of the cities where unemployment has been increased or threatens to become aggravated.

Iron and steel products were not enumerated by the President, but the cities affected by the situation are Pittsburgh, Bethlehem, Pa., Youngstown, O., Gary, Ind., Weirton, W. Va., Birmingham, Ala., Buffalo, Provo, Utah, and Atlanta, Ga.

The President said: "You recognize that currencies in 30 countries have now depreciated 5 to 55 per cent, which has reduced the standards of living in those countries and greatly widened the difference in cost of production between the United States and those localities."

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Interstate commerce commission has approved R. F. C. Loans totaling over $7,000,000 to the Erie, Chicago & North Western and Chicago & Eastern Illinois railroads, chiefly for refunding purposes. The latter carrier, however, will use $100,000 for rail equipment, including 1130 tons of 110-pound rails.

The R. F. C. is purchasing $75,000 worth of bonds from Covington, Ky., making possible a purchase of 510 tons of cast iron pipe. From Gulfport, Miss., the R. F. C. will buy $150,000 worth of bonds, for shipside transit warehouses and storage warehouses, including rails and switch track.

New York Central railroad has applied to the interstate commerce commission for sanction of an R. F. C. loan for $2,500,000, partly for the repair of 13,000 freight cars.

R. F. C. loans in September totaled $59,155,319, compared with $122,277,641 in August.

September Imports Gain Over August

Imports of steel and iron into the United States in September, as compiled by the iron and steel division, department of commerce, are shown in the accompanying table, supplementing the report on September foreign trade appearing in STEEL of Nov. 24, page 16.

The change in tonnage is small from August to September, an increase of 5618 tons. Pig iron imports were almost even for the two months, but the total for nine months of 1932 is 90,324 tons, compared with 70,197 tons for the same period of 1931. Ferromanganese and spiegeleisen also were about equal for the two months but fell off in the 9-month period from 21,242 tons to 17,486 tons.

Small increases were made in scrap, sheets, skelp, structural shapes, rails, and fastenings. Decreases are shown in steel bars and hoops and bands. Changes in other classifications are of no moment.

IMPORTS OF IRON AND STEEL PRODUCTS INTO THE UNITED STATES

Gross Tons

Item	Sept., 1932	Aug., 1932	Sept., 1931
Pig iron	7,250	7,198	5,104
Sponge iron	6	.....	1
Ferromanganese, spiegeleisen (1)	1,163	1,084	976
Ferrochrome (2)	.....	14	.....
Ferrosilicon (3)	.....	8	22
Other ferroalloys	.....	.....	311
Scrap	4,390	864	746
Steel ingots, blooms, billets	91	14	1,661
Concrete bars	1,181	533	3,571
Hollow bar, drill steel	125	99	127
Merchant steel bars	1,193	1,432	4,676
Iron slabs	.....	.....	.....
Iron bars	38	101	30
Wire rods	862	395	593
Boiler, other plate	33	28	1
Sheets, skelp, saw plate	1,817	1,164	1,852
Tin plate	5	4	34
Structural shapes	3,109	1,835	5,266
Sheet piling	.....	1	2
Rails, fastenings	2,524	534	303
Cast iron pipe, fittings	.....	.....	236
Welded pipe	239	358	888
Other pipe	190	236	223
Barbed wire	748	859	404
Round iron, steel wire	107	68	138
Telephone, telegraph wire	.....	.....	.....
Flat wire, strip steel	88	113	74
Wire rope, strand	143	103	177
Other wire	48	85	21
Hoops and bands	3,062	5,664	2,857
Nails, tacks, staples	762	671	446
Bolts, nuts, rivets	12	38	57
Horse, mule shoes	26	9	.....
Castings, forgings	29	111	169
Total	29,241	23,623	30,966

(1) Manganese content.
(2) Chromium content.
(3) Silicon content.

Eib Receiver for Pettibone

C. H. Eib, president of the Pettibone-Mulliken Co., Chicago, manufacturer of railway track material, forgings and castings, has been appointed receiver in equity for the company on petition of a creditor. The company has defaulted on interest payment for three periods and an attempt at reorganization failed.

Gray Iron Executives To Hold New York Meeting

A general meeting of gray iron executives to be held in the Waldorf-Astoria hotel, New York, Nov. 17, has been announced by the Gray Iron institute, Cleveland. Nonmember executives are invited to participate.

Among subjects to be discussed are new developments in the technical work of the institute, a reciprocal plan for handling fire insurance, cost work and merchandising activity.

Machine Tool Builders Move to Cleveland

The National Machine Tool Builders' association is moving its offices from Cincinnati to Cleveland, effective Nov. 1. The new headquarters will be at 1220 Guarantee Title building.

Herman H. Lind was recently appointed general manager of the association, as reported in STEEL Sept. 19, page 16.

Canadian Output Still Falls

Output of steel ingots and castings in Canada in September was 23,139 gross tons, compared with 26,710 in August. For nine months ended Sept. 30 cumulative output is 257,843 tons.

September output of pig iron in Canada was 5709 tons, against 5992 tons in August. September production was entirely basic.

Ferromanganese production in September was 732 tons, or 139 tons below August.

To Build Cold Strip Mill

Pittsburgh—Follansbee Bros. Co. announces that a cold-rolled strip mill will be added to its plant at Follansbee, W. Va., in the present open-hearth building. Estimated cost is $350,000. Purchase of the new equipment is expected immediately.

Pittsburgh Steel Re-elects

Pittsburgh—All directors and officers of the Pittsburgh Steel Co., Pittsburgh, were re-elected at its annual meeting in Pittsburgh, Oct. 25.

Concrete Meetings Off

Concrete Reinforcing Steel institute, Chicago, has decided to abandon its sectional and national meetings this fall.

Industrial Men in the Day's News

Clyde G. Conley, President, American Institute of Steel Construction

HIS election is recognition of his unflagging interest in the structural fabricating industry.

SINCE leaving college, he has been associated exclusively with the Mt. Vernon Bridge Co., now being president.

IN the banks and civic enterprises of his home town in central Ohio he is a leader.

CLYDE G. CONLEY, president of the Mt. Vernon Bridge Co., Mt. Vernon, O., was elected president of the American Institute of Steel Construction, New York, at its tenth annual convention at Pittsburgh, Oct. 20-21, to succeed Charles N. Fitts.

Other officers elected were: First vice president, Clyde MacCornack, Phoenix Bridge Co., Phoenixville, Pa.; second vice president, H. A. Fitch, Kansas City Structural Steel Co., Kansas City, Mo.; treasurer, Robert T. Brooks, the George A. Just Co., New York; assistant treasurer, A. J. Post, Post & McCord Inc., New York. Charles F. Abbott, New York, was re-elected executive director. J. M. Hughen was elected a director, and the following directors were re-elected: T. J. Foster, National Bridge Works, Long Island City, N. Y.; H. B. Hirsh, Belmont Iron Works, Philadelphia; N. W. Warren, Montreal, Que.; Mr. Fitch and Mr. Fitts.

Mr. Conley, a graduate of Denison and Ohio State universities, became associated with the Mt. Vernon company in a minor drafting capacity in July, 1902. Six years later he was appointed chief draftsman, and three years later he was made contracting engineer. These broadening contacts with the sales department led to his appointment as secretary of the company in 1914, and in 1919 he was made vice president. In January, 1930, Mr. Conley succeeded the late I. M. Wolverton as president and treasurer.

During the World war, the Mt. Vernon company built a number of warehouses for the government for shipment to France and fabricated steel for ships—patriotic enterprises in which Mr. Conley played a large part. The company also has erected five bridges each across the Missouri and Ohio rivers, installed a number of bascule bridges across the Chicago river in Chicago, and fabricated a portion of the structural steel for the Cleveland union terminal project.

In addition to his noteworthy interest in his own company and his own industry, Mr. Conley participates in the direction of several banks, his church and the chamber of commerce of his home city—Mt. Vernon, O. He is also a member of the American Society of Civil Engineers and the Beta Theta Pi and the Phi Beta Kappa fraternities.

L. JENNINGS, vice president of the Lamson & Sessions Co., Cleveland, is now also director of sales, following the recent resignation of C. H. Longfield, to become general manager of sales of the Youngstown Sheet & Tube Co., Youngstown, O.

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Hazen S. Carson, who was associated with Buick Motor Co., Flint, Mich., for 16 years, ten of which in the capacity of steel buyer, resigned Oct. 8. Mr. Carson has not announced his plans for the future.

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Fred C. Archer, who was president of the Fred C. Archer Co. prior to joining the staff of the Lincoln Electric Co., Cleveland, has been appointed manager of the Philadelphia district of the Lincoln company, with offices at 401 North Broad street.

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J. Frank Rogers, consulting engineer of the Wellman Engineering Co., Cleveland, for the past three years and formerly manager of its gas producer division, has been re-appointed manager of this division, effective Nov. 1.

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William Giles Newton, engineer, prominently identified with the die casting industry and former president of the Newton Die Casting Corp., New Haven, Conn., has opened an office as consulting engineer, with a staff specializing in die casting and die casting equipment, at 151 Court street, New Haven.

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J. M. Morris, formerly traffic manager, National Tube Co., Pittsburgh, is now president and general manager of the McKeesport Connecting and Lake Terminal railroads, transportation subsidiaries of the United States Steel Corp. Mr. Morris had been traffic manager of the Tube company since 1923.

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Chauncey P. Ross, assistant general manager; J. E. DeLong, sales man-

ager; J. B. Fisher, chief engineer; and Andrew S. Cronk, purchasing manager, have been elected directors of the Waukesha Motor Co., Waukesha, Wis., to make operative a general managers' committee to take complete charge of the business in the event of illness, absence or death of the president, H. L. Horning.

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P. C. Clarke, formerly in charge of spring design at the Philadelphia plant of the General Electric Co., is in charge of the engineering and research departments of the Hunter Pressed Steel Co., Lansdale, Pa. He assumed his new post Aug. 1.

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Daniel Cowan Jackling, San Francisco, noted mining engineer, has been awarded the John Fritz gold medal for 1933 by the four national societies of civil, mechanical, electrical and mining and metallurgical engineers. In addition to a number of copper companies, Mr. Jackling is president of the Mesabi Iron Co.

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N. G. Symonds and C. E. Stephens have been named vice presidents of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Mr. Symonds formerly was a commercial vice president and will now be located in East Pittsburgh as vice president in charge of sales. Mr. Stephens will remain as vice president in New York.

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Eugene P. Thomas, vice president of the United States Steel Corp., and formerly president of its exporting subsidiary—the United States Steel Products Co., has been elected president of the National Foreign Trade council, New York.

James A. Farrell, formerly president of the Steel corporation, has been re-elected chairman of the council.

New Discounts Named On Boiler Tubes

Cleveland—Quantity discounts on standard commercial, seamless boiler tubes, both cold-drawn and hot-rolled, have been revised by a leading maker. The newly-announced discounts establish four quantity classifications, supplanting the three formerly in effect.

Essentially, the result of the new quantity discounts and brackets is to increase slightly the mill quotations on smaller quantities of boiler tubes, thus affording a greater degree of protection to distributors and jobbers.

The new discounts follow: Under 10,000 pounds, 10 points and 5 per cent; 10,000 to 24,999 pounds, 6 points and 5 per cent; over 25,000 pounds to carload, 2 points and 5 and 5 per cent; carloads and over, base discount and 5 and 5 per cent.

Obituaries

J. GILMORE, 69, for 44 years connected with the American Steel & Wire Co. and for several years sales manager at Birmingham, Ala., died Oct. 24. Mr. Gilmore retired Oct. 1 on account of ill health.

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George L. Wright, 65, president, Davis & Thurber Machine Co., North Andover, Mass., died Oct. 14.

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John G. Cress, 57, organizer of the Waterloo Spring Co. and an inventor of machinery, died at Kitchener, Ont., Oct. 24.

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Walter L. Keefe, for 40 years head of the Cleveland Block Co., Cleveland, maker of iron and steel tackle blocks, died Oct. 21.

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James C. Fitzpatrick, 55, assistant master mechanic of the Tennessee Coal, Iron & Railroad Co. rail mill at Ensley, Ala., died Oct. 20.

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J. O. Cosper, 45, master mechanic for several years of Birmingham, Ala., blast furnaces of the Sloss Sheffield Steel & Iron Co., died Oct. 25.

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Thomas W. Simpers, until his retirement Philadelphia sales manager, American Sheet & Tin Plate Co., for many years, died Oct. 24.

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Frank O'Day, 50, president of the Oil City Boiler Works, Oil City, Pa., son of the man credited with creating pipe line transportation, died Oct. 12.

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Ralph C. Ringwald, vice president, Louis J. Silberman Iron & Metal Co., St. Louis, and formerly with the Standard Steel & Rail Co., died recently. He was 46.

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George P. Macready, 65, treasurer and general manager of the Franklin Machine Co., Providence, R. I., and formerly with the Corliss Engine Works and the American-British Machine Co., died Oct. 13.

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W. F. Morris 82, a retired veteran railroader and father of W. F. Morris Jr., vice president, Weirton Steel Co., Weirton, W. Va., and J. M. Morris, new president of the McKeesport Connecting and Lake Terminal railroads, died at Pittsburgh, Oct. 24.

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Judge Robert Ewing, 83, who in 1898 became president of the Buffalo Iron Co., Nashville, Tenn., which merged six hot and cold-blast charcoal blast furnaces, died at Nashville, Oct. 23. These stacks were the Warner, Goodrich, two Mannie, Etna and Cumberland, with an annual capacity of 105,000 tons of carwheel and other special irons. In the depression of 1904 the Buffalo company succumbed.

Bar Mill Wages Up, First Time Since Late in 1928

Wages in bar iron mills having contracts with the Amalgamated Association of Iron, Steel and Tin Workers will be increased in November and December for the first time since the same period in 1928. The average sales price of bar iron in September and October was 1.50c, per pound, up from 1.45c in the preceding two months. Sales prices averaged 2.00c in each of the bimonthly periods of 1929, and then declined, as indicated in the following table. Puddlers will receive $9.30 per ton, 25 cents more than in September and October.

	1932	1931	1930
Jan.-Feb.	1.65c	1.70c	1.95c
March-April	1.65c	1.70c	1.90c
May-June	1.50c	1.70c	1.90c
July-Aug.	1.45c	1.70c	1.80c
Sept.-Oct.	1.50c	1.65c	1.80c
Nov.-Dec.	.....	1.65c	1.70c
Yearly average	.....	1.66c	1.84c

K. L. Griffith To Handle Sheet Sales for Bethlehem

Directors of the Bethlehem Steel Corp. Oct. 27 formally approved acquisition of the Seneca Iron & Steel Co., Buffalo. Stockholders of Seneca recently approved the merger. K. L. Griffith, formerly president of Seneca, has been appointed general manager of sheet sales to handle all sheet products made by Bethlehem, under Paul Mackall, vice president, and H. G. Walton, general manager of sales. Mr. Griffith will be located at Bethlehem, Pa. T. Burns, general manager of the Lackawanna plant of Bethlehem, will be in charge of manufacturing at the Seneca plant at Blasdell, N. Y., which becomes a division of Lackawanna.

Here and There In Industry

HEPPENSTALL CO., Pittsburgh, has appointed L. A. Quinn, 28 South Twentieth street, Birmingham, Ala., district representative for the southeastern district for the sale of forgings, die blocks, shear knives and other steel products.

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Mills Co., Cleveland, manufacturer of metal partitions, has appointed the Spickelmier Fuel & Supply Co., 1080 East Fifty-second street, Indianapolis, its sales representative in

(*Please turn to Page 52*)

MIRRORS OF MOTORDOM

DETROIT

WITH Plymouth and Buick now assembling 1933 models, Chevrolet having all of its parts production under way and planning to start assembly in a few days, and Chrysler, Dodge, Olds, Reo, Pontiac—in fact practically all other manufacturers—scheduled to resume sometime in November or early in December, the automotive situation appears to be improving.

For passenger cars and trucks the course of production in the United States this year has been from 119,000 units in January to 117,000 in February to 119,000 in March to 148,000 in April to 184,000 in May to 183,000 in June to 111,000 in July to 90,000 in August to 84,000 in September.

October was a big disappointment. The unexpected extreme recession by Ford and postponement of a start on models, for one reason on account of uncertainty of the election, depressed the month beyond all expectations. Since the government in 1921 began compiling statistics, the all-time low has been the 79,455 units made in December, 1921, and October undoubtedly has broken through this.

Election Is a Hazard

At the start, it would appear that November production will exceed October, but the election presents a difficult variable. Normally, December is a low month, as most manufacturers are tapering off from their pre-show runs and are waiting the verdict of the shows. But the late start this year may redeem December. All expectations, however, are contingent upon the election.

Plymouth production the past week has been at the rate of about 500 units daily, but the flow of materials and parts is being speeded up and a daily rate of 1000, 5 days a week, is the goal, beginning early in November. The crankshaft blanks Plymouth is using are of the die-rolled type, permitting the counterbalances to be forged as an integral part of the shaft instead of being bolted on.

Introduction of the Plymouth may not be over several weeks distant, following closely the first showing of the new Buick about Nov. 15. The new Dodge six and Chrysler six are approaching the production stage, and with the Plymouth six and Dodge six the Chrysler organization expects to make its most pretentious bid yet for low-price business.

The Chrysler organization has reduced prices of the Dodge six as well as Plymouth, making Plymouth the bottom of the line, with the Dodge six, DeSoto and Plymouth six in order just above it.

Dietrich Designs Continental

For Continental Motors, Oct. 20 was the deadline on tenders for material and parts for its new low price car which, at least in Canada, will be called the Frontenac. After considering several body designs, Continental has called in Ray Dietrich. It is understood that the DeVaux will be continued with a few changes.

Graham having proved a style leader with rakish radiator shell, drop fenders and streamline rear, it still is in vogue and probably will be continued for 1933 with practically no changes. The wheelbase of the new six, however, will be shortened slightly.

Ford operations continue only three days a week, with the daily average probably less than 1500. This restriction, however, has the advantage of clearing Ford dealers' floors and putting them on the same basis as other dealers.

Ford, it is officially announced, will shortly open retail stores and service stations in a number of cities, the first to be in Buffalo. These stores will offer Ford products, such as batteries and accessories, and will also augment the service available to Ford owners. The financial position of dealers is one that is disturbing all manufacturers, and causing many shifts.

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Manufacturers of sheets are getting a good break through the trend toward the teardrop style of body. For the longer drop fenders, the tendency to carry the hood clear back to the windshield, and the curved rear quarters, wider sheets are in demand. Sheets as wide as 75 inches are being specified and in general, the increase in widths over 1932 requirements is 6 to 8 inches.

Some parts makers have gone to sheets for rear fenders, stamping two from one sheet. The one-piece front fender and skirt for 1932 models was a gain for the sheet mills, and this year the tendency to further enclose wheels and mask the undergear is another advantage.

Pontiac has been using sheets as large as 36 x 146 inches for the front fenders, nesting them. Packard early last season specified sheets as large as 60 x 120 inches, although receding later to 55 x 90 inches for the front fender.

Truck Output Expands

Output of trucks in September at 19,393 was an increase of 4976 over August and the largest since June, a gain taken to indicate basic improvement in business . . . . Marmon is now assembling its new 16-cylinder car and is evidently dropping its medium-price line . . . .Some of the extreme teardrop sport models for 1933 will feature tires colored like the body finish or in harmony with it . . . . Jaeger Motor Car Co., Belleville, Mich., is assembling a car, to be sold direct to buyers, which is designed to permit taking curves at extremely high speeds . . . . Graham is rustproofing its bodies after assembling, instead of the panels individually.

EDITORIAL

Tariff Policy and Dumping Are Separate Problems

IT IS regretable that so many cross currents of conflicting opinion are converging upon the tariff question at this time of industrial trouble. We are witnessing the unusual spectacle of several groups pressing for general reductions while other factions are advocating still more protection than is a afforded by prevailing laws.

More than a hundred economists recently protested against the existing tariff on the ground that extreme protection is untenable for a creditor nation. Many earnest exponents of American foreign trade are pleading with industries to be moderate in their demands for prohibitive tariff walls for fear their individual selfishness will spoil American markets abroad. Internationalists point to the outcome of the Ottawa conference as a reprisal directly traceable to our own tariff policy.

Diametrically opposed to these activities are the demands of numerous industrial groups for relief from the present imports of certain products at prices distinctly below domestic costs of production. The steel industry, through the American Iron and Steel institute, is attempting to invoke government prohibition against certain imports of steel under the anti-dumping provisions of the tariff laws. Meanwhile the President has requested the tariff commission to reinvestigate import duties of 16 commodities in order to determine whether inequalities caused by depreciated currency abroad will warrant further protection against foreign competition.

Nation Should Recognize the Two Distinct, Separate Problems in Tariff Discussion

Much of the confusion resulting from this array of apparently contradictory opinions can be avoided if we will consider that the tariff difculties of today involve two distinct problems and that their solution will be expedited if we will attack them separately.

The first problem is the immediate one of dealing with the importation of distress merchandise at prices far below the cost of production in the country of origin. This is dumping in its worst form and at a time when this country can least afford to stand it. The second problem is that of determining a general tariff policy which will take into account the changing position of the United States in the economic structure of the world.

The first problem calls for immediate action; it is an important phase of the depression and as such deserves consideration as an emergency With certain forms of steel being laid down a tidewater, duty paid, and sold at $30 per ton less than the selling price of competing domestic material; with tennis shoes from the Orient being offered at 25 cents per pair as against $1.00 for the domestic article; and with cement, lamp bulbs, cutlery, silverware, chemicals, pottery and numerous other products being dumped at only a fraction of costs in this country, the American manufacturers of these goods cannot wait for political or theoretical tinkering with the tariff. Their need today is not an upward revision of import duties but effective action in accordance with the provisions against dumping that already are part of the statutes. One of the difficulties is that damage has to actually occur and be proved in hearings before the anti-dumping law can be invoked. Practically all of the excellent work of representatives of the steel industry at Washington is aimed at deficiencies in the machinery of the customs regulations and not so much at the rates of duty.

Tariff Policy Suited To Depression Conditions Inappropriate for Prosperous Times

The second problem—that of general tariff policy—is one of the most important questions before the world today. It cannot be solved on the basis of present restricted world trade. A tariff that would give satisfaction generally as of Nov. 1, 1932, probably would become inappropriate in a period of moderate prosperity. The American tariff, when it is next revised, should be made to fit conditions likely to exist over the next decade. For this reason it cannot be created over night. It may be necessary, as at times in the past, to resort to emergency tariffs or to do with what we have until the world is restored to a semblance of stability that will enable the experts to draft a continuing policy.

In the meantime and for the immediate present, the most pressing problem is that of dealing with imports of distress goods. It is important to the success of our handling of this emergency job that it not be jeopardized by confusing it with the distinctly separate problem of tariff policy.

THE INDUSTRIAL DIAL

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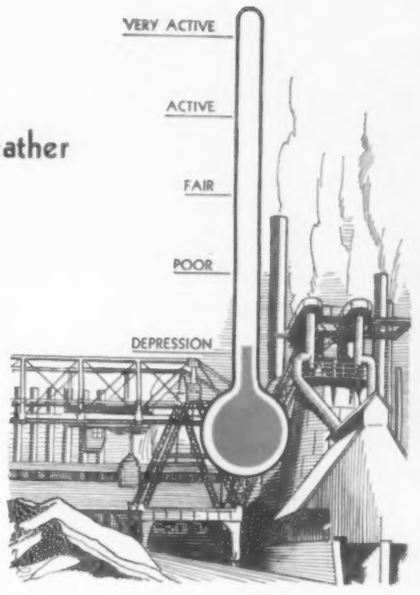
IN VIEW of the distracting influence of the present political campaigns, business in October has shown remarkable stamina. In most respects the healthy gains registered in September were carried forward in the tenth month. Exceptions to this are found chiefly in the relapse of certain commodity prices.

The best record for the current period undoubtedly is that of freight car loadings. Freight volume has mounted steadily to a high point for the year, which peak was registered some weeks later in the fall than was the case in any recent year. The heavier traffic already has been reflected in improved earnings. The first 21 railroads reporting for September showed a net operating income of $17,476,000 as compared with $10,148,000 for the same roads in August.

Industrial activity has made fair gains since early summer. The industrial production index of the Federal Reserve board increased from a low point of 58 in July to 60 in August and 66 in September. Inasmuch as steel ingot production, car loadings, activity in textile mills, etc., which weigh heavily in this index, were higher in October, it may be expected that the index for that month will show a rise above the September figure. The gain, however, is likely to be less than the margin of September over August. Whether or not the faint signs of a tapering off of business acceleration late in October are real or imaginary will not be known until the statistics for the month are available.

Industrial Weather

TREND:
Slightly Upward



Expert opinion of encouraging import was reflected in two events of last week. Continuing of the preferred dividend by the United States Steel Corp. was hailed as an expression of confidence. By a vote of 291 to 18, members of the

The Barometer of Business

Industrial Indicators

	Sept., 1932	Aug., 1932	Sept., 1931
Pig iron output (Daily average, tons)	19,788	17,035	38,947
Machine Tool Index	27.7	30.3	63.1
Unfilled orders (tons)	1,985,090	1,969,595	3,144,833
Ingot output (Daily average, tons)	37,502	3,830	59,439
Dodge Bldg., awards in 37 states (sq. ft.)		13,863,500	30,068,100
Automobile output	86,483	94,391	143,212
Coal output, tons	26,266,000	22,489,000	31,919,000
Business failures; number	2,182	2,796	1,936
Business failures; liabilities	$56,127,634	$77,031,212	$47,255,650
Cement production, Bbls.	8,189,000	7,835,000	12,092,000
Cotton consumption, bales	491,655	402,601	464,335
Car loadings (weekly average)	620,750	586,225	726,988

Foreign Trade

Exports	$132,000,000	$109,138,000	$180,228,000
Imports	$98,000,000	$91,100,000	$107,384,000
Gold exports	$60,000	$18,067,000	$28,708,000
Gold imports	$27,957,000	$24,170,000	$49,269,000

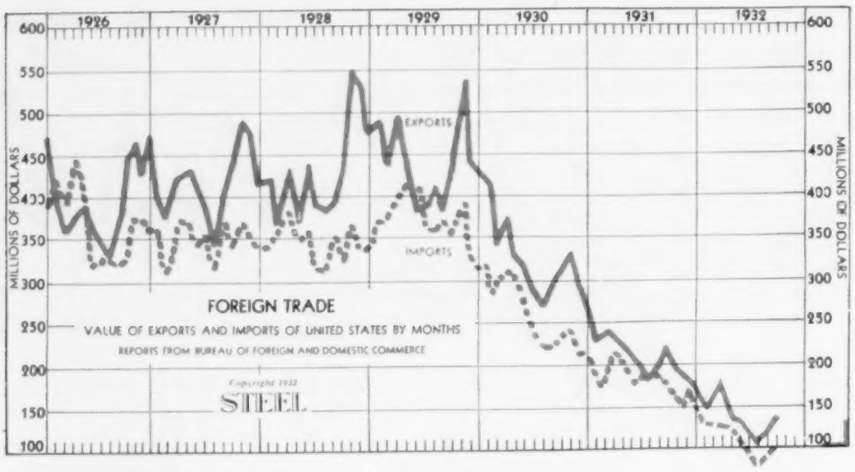
Financial Indicators

	Sept., 1932	Aug., 1932	Sept., 1931
25 Industrial stocks	$95.42	$103.32	$156.80
25 Rail stocks	$25.10	$29.46	$46.44
40 Bonds	$68.50	$71.23	$77.57
Bank clearings (000 omitted)	$20,390,292	$19,797,496	$30,718,458
Commercial paper rate, N. Y., per cent)	2¼	2½	2
*Commercial loans (000 omitted)	6,218,000	6,280,000	7,867,000
Federal Reserve ratio, per cent	60.8	58.9	79.4
**Railroad earnings	$28,368,388	$11,596,851	$56,444,155
Stock sales, N. Y. stock exchange	67,424,053	82,649,154	51,139,897
Bond sales, par value	$246,221,000	$344,494,950	$318,310,000

*Leading member banks Federal Reserve System.
**August, July and August respectively.

Commodity Prices

	Sept., 1932	Aug., 1932	Sept., 1931	Monthly aver. 1913
STEEL's composite average of 14 iron and steel prices	$29.32	$29.32	$31.03	$26.32
Bradstreet's index	$7.28	$7.17	$8.29	$9.21
Wheat, cash (bushel)	70c	68c	48c	92c
Corn, cash (bushel)	46c	47c	60c	51c
Petroleum, crude (Bbl.)	90c	90c	60c	$2.50



Exports

Sept., 1932	$132,000,000
Aug., 1932	109,138,000
Sept., 1931	180,228,000

Imports

Sept., 1932	$ 98,000,000
Aug., 1932	91,100,000
Sept., 1931	170,384,000

Investment Bankers Association of America affirmed their belief that "the return of confidence as reflected in the recent rise in security prices means the start of a definite movement toward recovery."

A new cloud in the financial sky appears over England where sterling has dropped sharply. Whether this results from outside influences reflecting concern over England's internal problems or whether it is in line with the Bank of England's policy of manipulating the currency deliberately is not clear.

In the United States, business sentiment will be badly mixed until after Nov. 8. The majority of observers seem to believe that industry already has discounted the outcome of the election. This can be determined with more certainty by conditions existing in mid-November.

Where Business Stands

Monthly Average, 1931 = 100

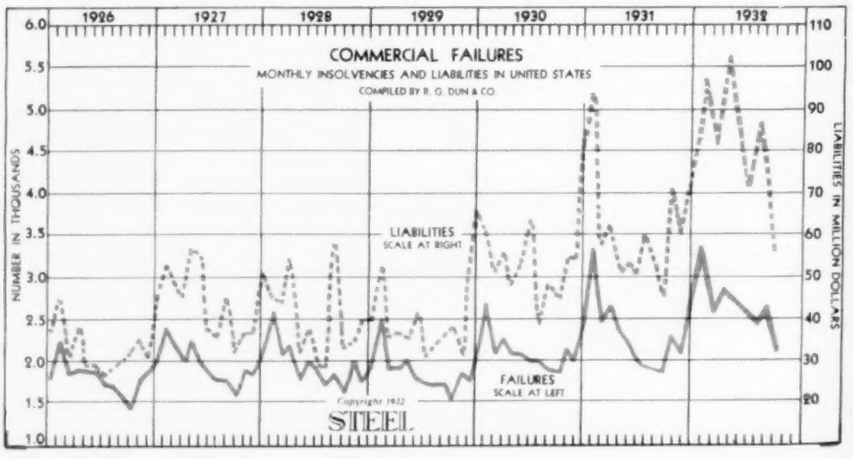
	Sept. 1932	Aug., 1932	Sept., 1931
Steel Ingot Output	46.8	38.5	74.2
Pig Iron Output	39.5	34.1	77.8
Freight Movement	77.8	72.1	101.5
Building Construction	.....	45.6	.....
Automobile Output	42.0	43.6	69.5
Wholesale Prices	83.1	81.8	94.6

Favorable Trade Balance Maintained As September Exports Gain

The total value of this country's foreign merchandise trade during September was estimated at $132,000,000 as compared with $109,000,000 in August and $180,228,000 during September last year. According to the bureau of foreign and domestic commerce, the valuation of imports are provisionally computed at $98,000,000 for the current month, leaving a favorable balance in the merchandise movement for the month of September of $34,000,000.

Commercial Failures Improve During September; Liabilities Down

Commercial failures in the United States during September were the lowest for any month for the past year. According to statistics compiled by R. G. Dun & Co., the total for the month was 2182. These figures compare with 2796 defaults for August and 1936 during September last year. Liabilities for September, while still high, owing to some unusually large defaults, declined to a new low for this year. The amount involved for the current month was $56,127,634.



Number

Sept., 1932	2,182
Aug., 1932	2,796
Sept., 1931	1,936

Liabilities

Sept., 1932	$56,127,634
Aug., 1932	77,031,212
Sept., 1931	47,255,650

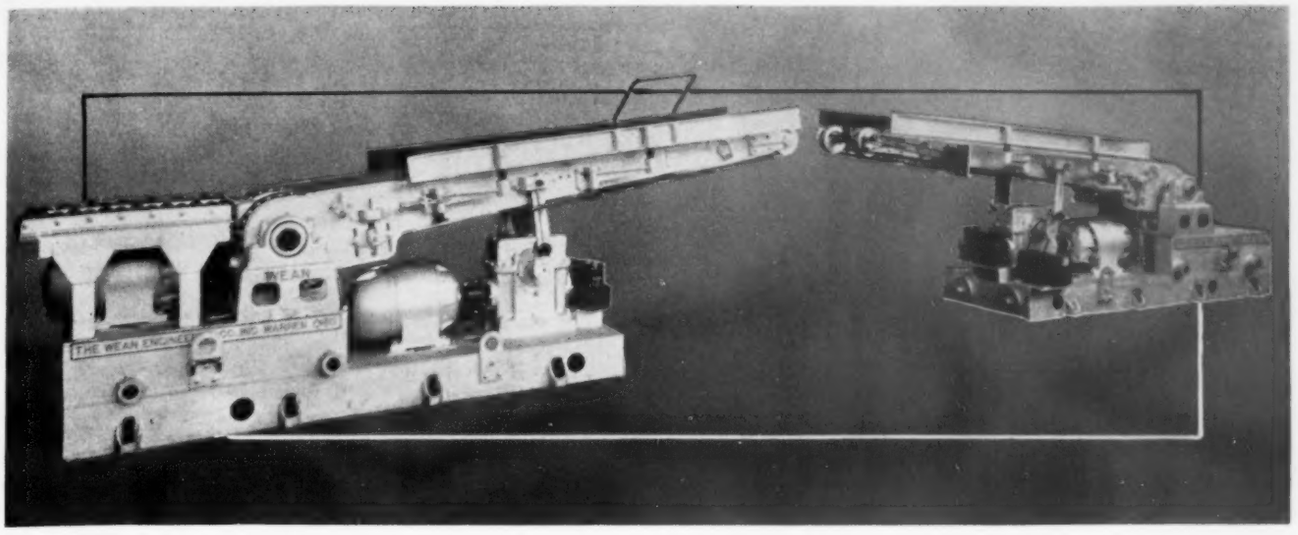


Fig. 1—Feeder and catcher tables for automatic rolling of sheet packs. Close inspection will reveal a small flag, operating a limit switch at the mill end of the catcher table, to the right

AUTOMATIC SHEET CATCHERS IMPOSE NEW DEMANDS ON MOTORS AND CONTROL

BY W. B. SNYDER

Industrial Engineering Department,
General Electric Co., Schenectady, N. Y.

INTRODUCTION of automatic catchers for sheet and tin plate mills has resulted in a material decrease in production costs, amounting in some cases to as much as $5 per ton. Successful performance of the electrical equipment used with these catchers contributes materially to the savings. Although considerable progress has been made in the development of catchers, both for 2-high and 3-high breakdown mills, to date the highest degree of mechanization has been reached on 2-high mills for pack rolling. Since these installations impose severe requirements on the motors and control, this article will be confined to a discussion of electrical equipment for 2-high finishing mills.

An automatic catcher installation consists of a continuous furnace, a runout conveyor for bringing the heated packs to the mill, a feeder table, a catcher table, a pack return conveyor for returning the rolled packs to the entrance side of the furnace for further heating, and in most cases an automatic roll polisher. The feeder and catcher tables are small tilting tables equipped with motor-driven chain conveyors. Fig. 1 illustrates a pair of these tables of recent design, built by the Wean Engineering Co., Warren, O.

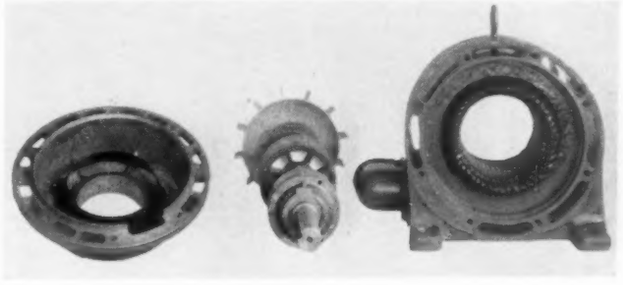


Fig. 2—Partly disassembled table conveyor motor showing small, light weight rotor, providing low inertia and high torque necessary for rapid reversal

Such equipment operates as follows: The roller signals for a new pack by means of a pushbutton or master switch. This first opens the furnace doors and then starts the furnace conveyor. The heated pack in passing out of the furnace trips a flag switch which stops the furnace conveyor and closes the doors. The pack passes down the runout conveyor onto the feeder table and is caught against a foot-operated stop. The pack is then centered by the side guards. The stop is released and the pack passes through the mill onto the catcher table.

When the pack has passed completely through the mill a flag switch gives indication for tilting both tables and reversing their conveyors, thus bringing the pack back over the top roll. When the pack has returned to the feeder table the flag switch gives the indication for dropping the tables and reversing their conveyors, sending the pack through the mill again. Meanwhile the roller has adjusted the screwdown for the sec-

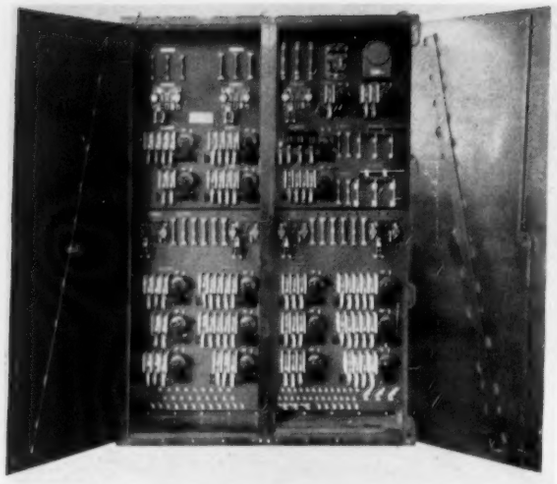


FIG. 3 — Complete control equipment for automatic sheet catcher installation, mounted in a single dust tight cabinet 5 feet wide and 7 feet high

ond pass. This operation continues automatically until the roller, by means of his master switch, stops the table for measuring.

If the pack is of proper length, the roller opens the rolls and, by his master switch, starts the tables and by-passes the flag switch so that the pack passes through the mill and off the catcher table. Here it is conveyed manually to the doubler, or to the finished pile. If the pack is to be doubled, it is placed on the pack return conveyor after doubling and sent back to the furnace. The roll polisher has meanwhile been in continuous operation, moving a small polishing stone axially over the surfaces of the rolls.

High Rate of Operation

These operations take place rapidly, at the rate of about 10 passes per minute for long packs. Tin plate mills rolling shorter packs have attained a rate of about 17 passes per minute, and it is expected that this may be increased to 20 passes per minute. Since the table conveyor motors must reverse twice and the tilting tables operate twice for each pass, the equipment is designed for 40 operations, or 20 passes, per minute continuously.

A typical installation requires nine motors, one each for the furnace blower, and furnace conveyor, the runout conveyor, the pack return conveyor, and the roll polisher; two for the table conveyors, and two for the tilting motions. The tilting motors are provided with solenoid brakes.

Table conveyor motors are of special design to provide the high torque and low inertia necessary for fast reversal, and to dissipate effectively the heat developed on the frequent reversing cycle. Fig. 2 is a view of one of these motors disassembled showing how the inertia has been reduced by keeping the rotor diameter small and removing inactive material from the rotor punchings. As illustrated, the motor is of the fan-cooled, ball-bearing type.

Design of these motors has advanced to a point where they now have about 85 per cent of the maximum torque and only 25 per cent of the WR^2 of a standard motor in the same frame. They will reverse the table conveyors from full speed to full speed in less than 0.5-second, and will operate the conveyors continuously at the rate of 40 reversals per minute without exceeding 75 degrees Cent. rise in temperature. The motors have high resistance squirrel cages to give high average torque and low heating over the reversing cycle, and the stator windings are insulated with class B insulation, consisting primarily of mica and asbestos.

Tilting motors are electrical duplicates of the table conveyor motors, although since they are subject to less severe duty, they are usually totally enclosed and not fan cooled. Other motors are of standard construction and usually are totally enclosed, ball bearing type. Fan-cooled features may be provided on the blower motor, which runs continuously, and class B insulation is used if the motors are to be subjected to a high ambient temperature. The furnace conveyor motors, which start and stop frequently, are provided with high resistance squirrel cage windings.

Control equipment for an automatic catcher consists of standard devices with some modifications to insure long life and is mounted in one or more dust-tight cabinets. Fig. 3 shows the complete control for an automatic catcher mounted in one cabinet. Fig. 4 illustrates two of the three cabinets used on another installation.

The equipment provides full voltage starting and individual overload protection for each of the motors. The operating sequence varies somewhat with the purchaser's requirements. Some equipment is arranged so that both furnace and tables are controlled from one master switch, and other designs provide separate controls for the furnace and the tables.

The control usually is arranged so that the furnace conveyor and furnace doors, and the feeder and catcher conveyors and tilting motors, can be operated either automatically in the normal sequence, or manually by push-buttons. The furnace control further provides a timer which will operate its conveyor intermittently on a definite cycle for charging.

Choice of Control Equipment

While practically all catcher installations use alternating-curent motors, both alternating and direct current have been used as the operating power for the control. The choice between the two types of control depends largely on the purchaser's preference, as both types have their advantages.

The primary advantage of alternating-current control is that control power is taken from the source which supplies the motors, and thus operation of the equipment is not dependent on the continuity of two sources of

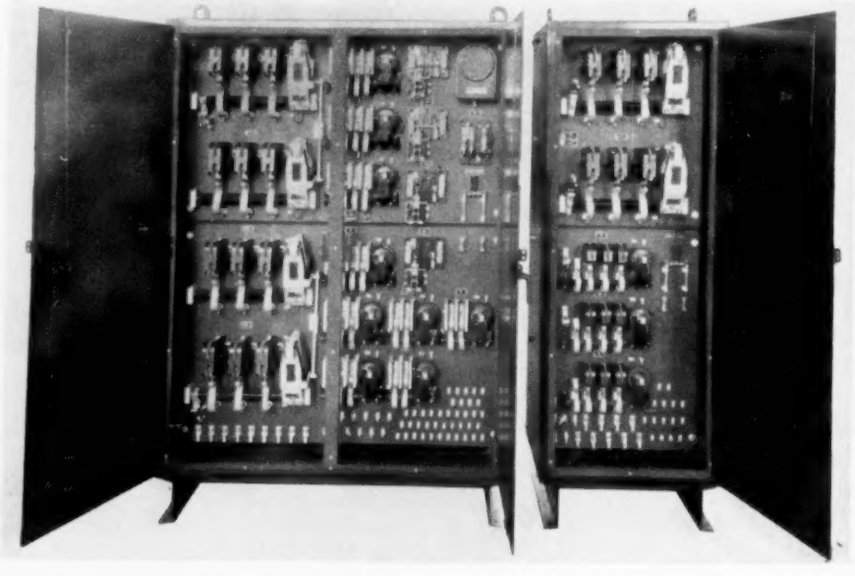


Fig. 4—Two of the three dustproof control cabinets with equipment used in one automatic sheet catcher installation

power. A minor advantage is the more rapid operation obtained with alternating-current contactors and brakes. The chief advantage of direct-curent control is the longer life obtainable from contactors and brakes.

It is possible to a certain extent to compensate for the disadvantages of both types of control. For example, with direct-current control it is possible by additional interlocking to anticipate the functioning of some of the devices, and thus approach the speed of operation obtainable with alternating-current equipment.

Furthermore, a material increase in the life of alternating-current contactors and brakes can be obtained by shortening the distance through which the armatures move, and by designing the coils for the actual range in control voltage present at the point of installation. The use of blowout coils on contactors permits successful operation with small gaps, and thus the armature movement on contactors which do not require mechanical interlocking may be greatly reduced. By the use of these expedients the expected life of alternating-current contactors compares quite favorably with that of direct-current contactors.

Brake Life Is Compared

The stroke of an alternating-current brake may be reduced without requiring more frequent adjustment than that usual in steel mill service, and this results in a material increase in life. While even with shortened stroke the life of this type of brake will be somewhat less than that of a direct-current brake, the former is less expensive and probably the cost per hour of operation will be about the same.

Limit switches which are connected to the flags operated by the pack are also especially designed for positive operation with low operating force, to prevent marking the pack by the flag. Fig 1 shows one of these switches connected to the flag on the mill end of the catcher table. This switch is cam operated, with double-break silver button contacts, as are the geared limit switches shown on the tilting motions of these tables.

The thrustor or hydraulic operator is coming into wide use as a control for furnace doors. The 600-pound 6-inch stroke size such as shown in Fig. 5 will take care of the majority of applications, if the door is properly counterweighted.

Several other developments in the control of automatic catchers are now under way. One is an automatic measuring device which indicates on a dial the length of each pass and automatically returns to zero between passes. This gives the roller a continuous check on his reductions, and permits him to compensate for errors during the rolling of the pack. Thus the pack may be rolled to length without requiring additional passes, or without incurring unnecessary scrap loss.

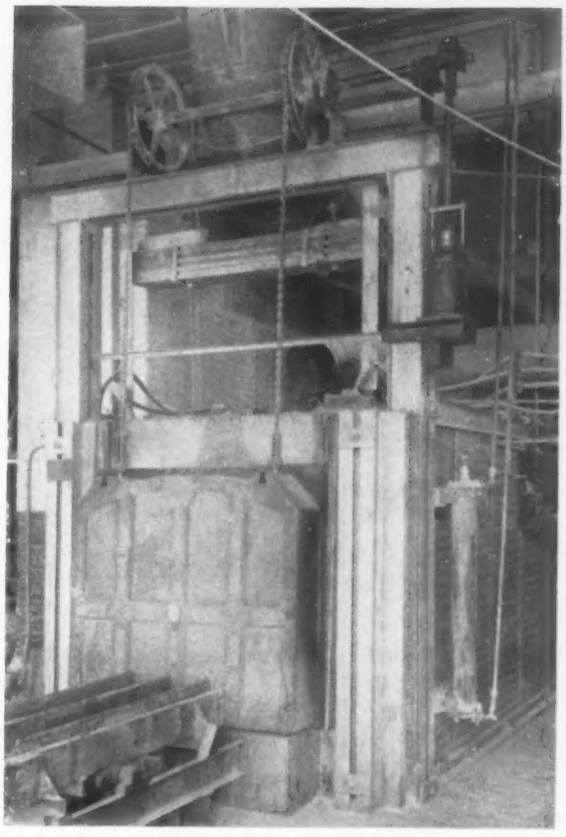


FIG. 5—Hydraulic operator with 6-inch stroke, applied to counterweight electric furnace door. A baffle is supplied in the operator to cushion the door when closing

Another development is an automatic preset screwdown control, (see STEEL, May 2, p. 31) which relieves the operator of the manual effort required by the hand screwdown and gives closer control of gage. This equipment provides for presetting the complete rolling schedule and provides means whereby the operator may quickly make minor adjustments to compensate for temperature differences in the packs or roll expansion.

On two installations the mechanical flag switches have been experimentally replaced by photoelectric relays. The successful application of these devices will eliminate the troublesome flexible connection between the table and the stationary parts, and will provide an unobstructed path for the pack on the table.

Use of Organic Solvents in Metal Degreasing

Improved methods of industrial metal degreasing are discussed in a recent bulletin issued by the Dow Chemical Co., Midland, Mich. Results of tests with various types of organic solvents in both liquid-phase and vapor-phase degreasing are presented. These solvents include orthodichlorbenzene, tetrachlorethylene, propylene dichloride, ethylene dichloride, carbon tetrachloride and solvents 164, 100 and 15, all manufactured by the Dow Chemical Co. Solvent action, fire hazard, toxicity, boiling point, solubility in water, latent heat of vaporization, specific gravity and corrosive effect of each solvent are tabulated. Arrangement of degreasing equipment with a view to high solvent recovery and low cost of operation is outlined.

Foundrymen Name Chicago For 1933 Convention

The American Foundrymen's association has announced its 1933 annual convention and exposition to be held in the Stevens hotel, Chicago, June 19-23. Because of an unusually fortunate combination of events, Chicago appeared to be the logical place for this meeting.

Previously, the American Society for Testing Materials had announced its annual meeting to be held in the Stevens hotel a week later, or June 26-30. Joint symposiums on castings have been arranged by the two societies, one during each meeting.

A further attraction of the Chicago meeting will be the Century of Progress exhibtion which opens June 1. The week of June 19 has been designated Science Week and that of June 26 Engineering Week. Special one-day meetings will be held during this period and the Foundrymen's association is co-operating with the committee and other societies in arranging the programs.

IMPROVING OPEN-HEARTH FURNACE DESIGN

By WILLIAM C. BUELL JR.

Part I Bottoms

(Fifth Article of Series)

CORRECTING the calculation for a proper bottom construction, to include the bath may be made separately. An annular ring as previously mentioned would have an inner radius of about 4 feet, and and outer radius 4 feet 9 inches greater. Assuming that the thickness of the ground magnesite, the chrome brick and the insulating material each maintain the constant depth of 15, 9 and 4 inches, respectively, and that all variation of depth is taken in the firebrick, this accordingly will be given a thickness of 29 inches, and the detail of the median bottom shown in Fig. 10.

The determination of the heat flow and temperature gradients through a median bottom as illustrated requires the calculation be made as based on the logarithmic mean of the included dimensions. If the temperature of the hotter surface is known or assumed (2900 degrees Fahr. throughout this work), then equation No. 2 can be derived.

Bottoms Are Compared

Evaluating Fig. 10 by equation No. 2 and other data previously used the resultants may be set up as in the first column of Table X. Set up with these figures for comparative purposes are bottom XK as recommended for use, K as representing the best and G as representing the poorest of the bottoms of recently installed furnaces. While all of these figures are interesting and convey considerable information, those of lines 18 to 24 only will be discussed as to first and operating costs. Bottoms J and T might well have been included for comparison as the results secured almost parallel those of bottom K, but J was excluded as in all respects its characteristics are nearly similar to K. While the low cost of bottom R made its data particularly interesting, it was omitted because information on bath depth was lacking.

Examination of Table IX gives a bath surface area for a 150-ton furnace as 570 square feet and a ratio of surface area to magnesite area as 0.872 to 1.0. Further, the ratio of outer surface to magnesite surface is as 2.29 to 1.0. As the average ratios are 0.87 and 2.20 to 1.0 respectively, and as it is desirable to work with averages, the latter figures are used.

The bath areas of bottom K and G from Table I are shown as 645 and 500 square feet respectively. For the purpose of comparative calculation, it will be taken that furnaces XK, K and G all have a bath area of 570 square feet, a magnesite surface of 652 square feet and an outer surface of 1276 square feet.

The emission rates of 398, 513 and 1150 B.t.u. per square foot of plane surface per hour and the ratio of 289: 398 of these amounts as representing the emission per square foot of the outer surface of 1276 square feet will be used.

Details of bottom makeup, temperature gradients and evaluated data in tabular form are shown in Fig. 11. A most significant feature of the graph is the difference indicated by the temperature drop through the bath. These temperature drops are principally a function of heat flow therethrough, although bath thickness enters into the calculation to a minor degree. Actually these temperature drops are somewhat greater than as shown, due to the following causes: Figs. 5 and 6 demonstrate that given the heat flow through a plane unit area, the temperature drop through the metal of the bath and the slag, and the required minimum flame temperature to satisfy the heat flow requirements, may be found by graphic methods.

Heat Flow Is Modified

The present article discloses that the total heat flow through a bottom is greatly modified by the ratios of area to the bath surface, the ground magnesite surface in contact with the bath, and the outer surface of the bottom containing structure. In the text relating to Table VI is shown a method of determining the heat flow through slag, metal and refractories of varying thicknesses but with unit area on the horizontal cross sections throughout.

Certain relations of area have been established in the current chapter as 0.87 for the slag surface, 1.0 for the magnesite surface and 2.2 for the outer surface. Also the heat flow through the outer surface is as 289 to 398 per square foot of surface. Accordingly for the purpose of finding the total heat flow through the unit of bath surface, a constant may be developed as $\frac{1.0 \times 2.2}{0.87} \times \frac{289}{398} = 1.835$.

Thus, if the heat flow is found by the simple unit area method at the center of the bath, the total heat flowing by reason of the variance of the areas in the median bottom may be obtained by multiplying the B.t.u. determined by the first method by 1.835.

Equation No. 2

$$U = \frac{t_o - t_a}{\frac{rad_4 \log_e \frac{rad_4}{rad_3}}{k_3} + \frac{rad_5 \log_e \frac{rad_5}{rad_4}}{k_4} + \frac{rad_6 \log_e \frac{rad_6}{rad_5}}{k_5} + \frac{rad_7 \log_e \frac{rad_7}{rad_6}}{k_6} + \frac{1}{C_2}}$$

U=Overall rate of heat transfer.
C_2=Rate of heat transfer from the cooler surface of the insulation to the temperature.
k=Conductivity of any material in B.t.u. per square foot per degree temperature difference between surfaces per 1 inch thickness per hour.
rad=Radius of any surface.
t_o=Temperature of the hotter surface.
t_a=Temperature of the surrounding atmosphere.

The depth of the metal is considered as one-half that given (average depth), and the slag depth 6 inches.

The details of these modifications as applying to bath temperature and by the use of Fig. 5 are presented in columns B to F inclusive, Table XI.

If a value of velocity is assigned to the flowing furnace gases, then with the emission rate and the use of Fig. 6, the minimum average flame temperature required to satisfy this emission may be found. In subsequent chapters dealing with the heat flow through backwalls and roofs a flame temperature common to each furnace will be used as the basis of the calculation. Such a minimum flame temperature is so established by previously described methods. The necessary figures are given in columns G, H and I, Table XI.

Flame Temperature Differs

If the minimum required flame temperature necessary to satisfy the radiation demands of bottoms XK, K and G of 3149, 3210 and 3423 degrees Fahr., respectively, are selected for examination the difference in temperature requirements of 274 degrees between the first and last bottom will be particularly significant. These figures show rather conclusively to what extent furnace design acts or reacts to the economy of overall operation.

Furnace G also will have a "cold" bottom (it actually has such a reputation) which means a slower working bath of metal, and it follows that there will be an increase in pit scrap and ladle skulls from this defect. All of these factors tend to increase time of heat, labor, upkeep and production costs which, while generally intangible, if eliminated by good bottom design would all react favorably on production and cost.

The tap hole usually is on the cross center line of the furnace opposite the center charging door. The slope towards the spout usually is developed from the approximate longitudinal center line of the hearth and, in magnitude, is from 1 : 8 to 1 : 12. The steeper slope is more desirable, but conditions around the ladle stands and the length of the tapping spout frequently require the use of a lesser slope. The diameter of the tap hole varies from 8 to 14 inches depending on the capacity of the bath, the ideas of the operators and the slope of the spout.

The tap hole from the outer surface of the ground magnesite hearth to the back wall plates usually is developed of magnesite brick. Customarily, the magnesite brick surrounding the tap hole is from 13½ to 18 inches or more thick. Owing to high heat flow characteristics, its use for this purpose should be confined to the least thickness that will satisfy the operators. Attention is directed to the fact that excepting bottoms A, N and O as shown in Fig. 1, none of the bottoms as designed indicate any attempt to save first cost by holding ground magnesite to a minimum thickness and replacing this expensive material with brick of less cost.

Table X

Comparison of Bottom Costs

Bottom	Line	Median, Fig. 10	XK	Best K	Poorest G
GROUND MAGNESITE					
Thickness, inches	2	15	15	19	12
Temperature, deg. Fahr	3	2900	2900	2900	2900
r3	4	0.816	0.72	0.913	0.568
Cost per sq. ft.	5	$7.12	$6.16	$7.80	$4.93
CHROME BRICK					
Thickness, inches	6	9	9	9*	9†
Temperature, deg. Fahr	7	2664	2620	2532	2246
r4	8	0.4585	0.432	0.432	0.432
Cost per sq. ft.	9	$5.21	$3.70	$4.38	$5.05
FIRE BRICK					
Thickness, inches	10	29	16	7	9
Temperature, deg. Fahr	11	2531	2451	2210	1748
r5	12	4.28	2.00	0.875	1.124
Cost per sq. ft.	13	$6.35	$1.94	$0.85	$1.09
INSULATION					
Thickness, inches	14	4	4	6‡	None
Temperature, deg. Fahr	15	1295	1669	1660	....
r6	16	3.70	3.60	2.83	....
Cost per sq. ft.	17	$1.60	$0.74	$0.64	....
TOTAL					
Thickness, inches	18	57	44	41	30
Outer surface temp. degrees Fahr.	19	225	263	301	433
R	20	9.6895	6.752	5.05	2.125
Cost/sq. ft.	21	$20.28	$12.54	$13.67	$11.07
Emissions B.t.u./sq. ft./hr.	22	289	398	513	1150
Total emission B.t.u./sq. ft./hr. (22X2.2)¶	23	636			
Cost/R	24	$2.09	$1.86	$2.71	$5.19

(*) Half each, magensite and chrome brick.
(†) Magnesite brick.
(‡) Insulation, 2½ inches; chrome ore, 3½ inches.
(¶) Based on 1 square foot of ground magnesite surface.

Table XI

Values of Modified Bath Temperatures

A	B	C	D	E	F	G	H	I
Furnace	Emission rate, B.t.u. (Table V)	Total emission, B.t.u. (Bx1.835)	Corrected temp. drop through slag, °F.	Corrected temp. drop through iron,* °F.	Corrected temp. of surface of slag, °F. $\left(\frac{2900°+}{D+E}\right)$	†Velocity as at 32 °F.	Temp. diff. between slag and fce. gas, °F. (Fig. 6)	Necessary Min. Av. flame temp. °F. (F+H)
A	1080	1905	76	52	3028	3.14	345	3373
C	914	1677	68	44	3012	1.40	360	3372
D	991	1818	72	49	3021	1.96	365	3386
E	938	1722	68	46	3014	1.87	355	3369
F	938	1722	68	54	3022	2.62	338	3360
G	1150	2110	84	64	3048	2.48	375	3423
H	1068	1960	71	41	3012	2.27	375	3387
I	910	1670	68	50	3018	2.10	345	3363
J	550	1009	40	27	2967	2.94	250	3217
K	513	941	39	24	2963	2.62	247	3210
L	855	1570	63	48	3011	3.30	310	3321
M	877	1610	64	67	3031	2.27	335	3366
N	1004	1842	73	57	3030	2.99	335	3365
O	1004	1842	73	57	3030	2.42	335	3365
XK	398	730	29	20	2949	2.75	200	3149

†Values presented in this column are established in a subsequent chapter.
*The heat flow through the metal is calculated at one-half the depth (mean) given in Table VI.

Heat Flow and Capital Costs

If the cost of fuel as fired is established, the cost of the heat flowing through a given bottom may be computed easily by the proper use of the values established as emission rates, the grain magnesite and outside areas of the bottoms and by the employment of certain determined ratios. It is probably best to estimate such costs on a yearly basis. The equation is as follows:

$$X = \frac{A \times K \times U \times Y \times M}{1{,}000{,}000} \quad (3)$$

in which

X = Total cost of radiation through a bottom in dollars per year of the bath

A = Area in square feet at the foreplate (see Tables I and IX)

K = 1.835, a constant combining of the ratio area of the bath at foreplate level and the junction with the grain magnesite, the ratio of the area of the ground magnesite hearth and the outer surface of the bottom, and the ratio of emission through the bottom as calculated as a square foot of minimum thickness and of the median of the bottom when calculated as a section of an annular ring.

U = The overall rate of emission through 1 square foot of an open-hearth bottom of minimum thickness.

Y = One year, considered as 7200 hours.

M = Cost of fuel, dollars per million B.t.u. as fired, taken as $0.30.

Evaluating with a constant A (570 square feet) but changing the value of U (398 for XK, 513 for K, and 1150 for G), the yearly costs of heat passing through the three bottoms will be found as $900, $1060 and $2600, respectively. While bottom XK probably represents the best design possible with existing materials and our knowledge of them, and while under these conditions $900 annual heat is a nominal figure, yet the $2600 for bottom G represents an added operating cost of much more than the difference of $1700.00 a year, indicates. If such bottoms were considered as in a 14-furnace plant, even the directly ascribed difference in favor of the recommended bottom would be well worth saving.

Irrespective of any other considerations, the true measure of the cost of the refractory bottom is its unit cost per combined R. Such figures for the three bottoms under discussion are given in line 24 of Table X as $1.86, $2.71 and $5.19 for bottoms XK, K and G, respectively.

The costs per square foot in the same order are $12.54, $13.67 and $11.07. Considering that the thickness of the refractory, line 18 is 44, 41 and 30 inches, the cost factor in favor of bottom XK is even more marked. The total cost of the bottoms of $14,740, $16,050 and 13,000 indicates that much or little may be accomplished with a sum of money varying but slightly, the difference between the limits of first cost being but 12 per cent, while the difference between the limits of operating costs is nearly 300 per cent. The value of proper design, therefore, is obvious.

(To be continued)

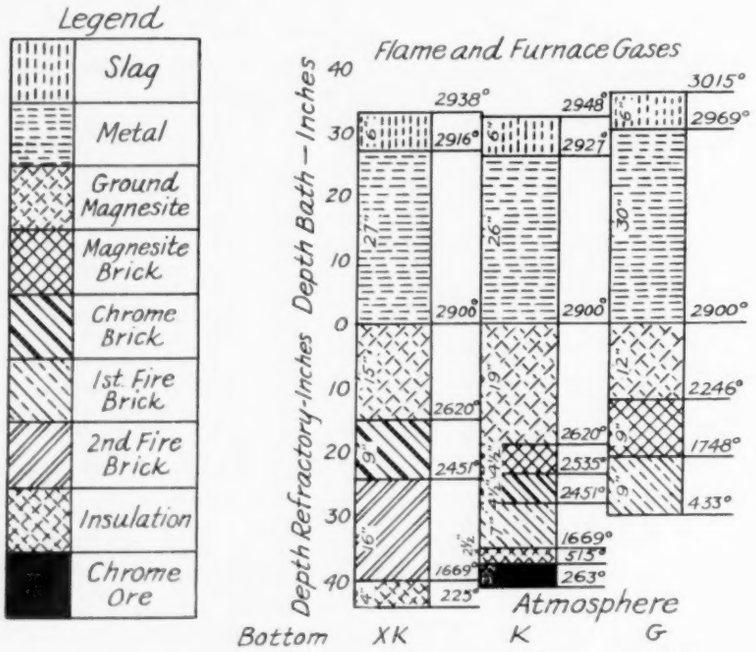
Will Manufacture 18-8 Clad Steel

ALLEGHENY STEEL CO., Brackenridge, Pa., announces it has acquired a license to manufacture stainless clad steel under the recent Ingersoll patent. The stainless steel and plain carbon steel are combined in the ingot and rolled together, the resulting material being a solid sheet or plate of which 20 per cent is 18-8 chrome-nickel steel and the remainder is mild steel. The two are indissolubly bound together and protracted tests have proved that the bond is unaffected by differences in coefficients of expansion.

Because the new material will sell at a base price one-half that of the solid alloy, it is believed an entirely new field for the corrosion-resisting alloys will be opened up. It is not expected that the combination sheet will replace the solid alloy in most of its present applications, but rather that many new uses will appear. One of these may be the prefabricated steel house, progress with which has been awaiting development of a suitable material at a practicable price.

Another advantage of the combination sheet will be its comparative ease of fabrication. The straight 18-8 alloy, because of its exceedingly high tensile strength, requires correspondingly increased power to work it. The physical characteristics of the new combination sheet will approach more nearly those of mild steel which makes up 80 per cent of the sheet.

The new product will be known as Allegheny Metal Clad Steel. The manufacturer announces it is prepared to furnish the same material in the proportion of 10 per cent chromium-nickel alloy instead of 20 per cent in combined gages heavier than 0.0625 for applications where the thinner layer of alloy is deemed sufficient.



Bottom	XK	K	G
R	6.752	5.05	2.125
Emission B.t.u. per Sq. Ft. per Hr.	398	513	1150
Emission Entire Bottom B.t.u. per Hr.	415,000	535,000	1,147,000
Cost of Radiated Heat per Year	$900.00	$1060.00	$2600.00
Cost of Bottom per Sq. Ft.	$12.54	$13.67	$11.07
Cost of Entire Bottom	$14,740.00	$16,050.00	$13,000.00

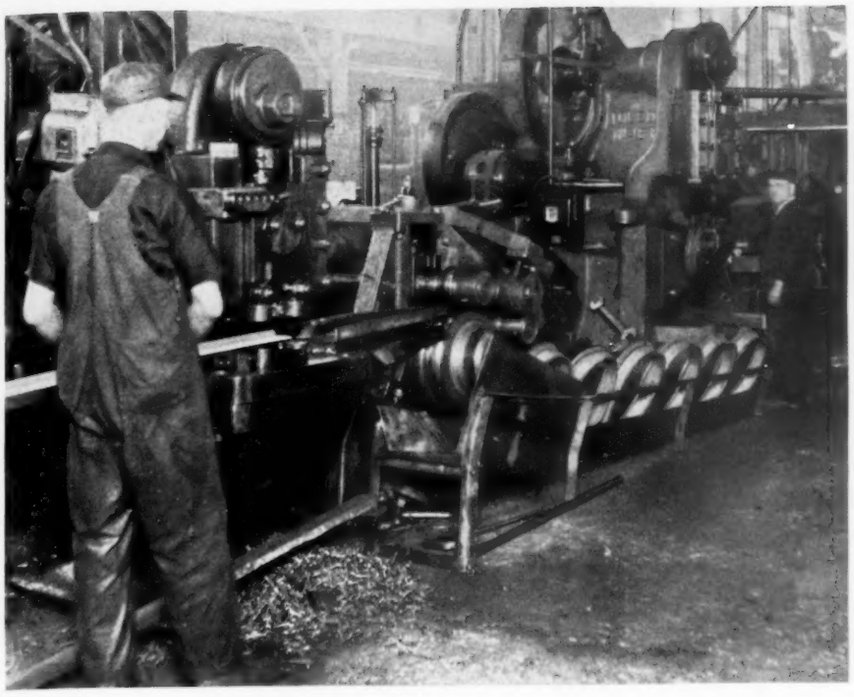
Fig. 11—Comparisons of makeup and temperature gradients of selected open-hearth bottoms

Claims Liberal Alloy Scrap Use Improves Pig Iron

Better pig iron can be produced by a liberal use of alloy steel scrap, declared Karl Steinbacher, superintendent of blast furnaces, Wheeling Steel Corp., Wheeling, W. Va., in an address before the Cincinnati chapter of the Institute of Scrap Iron and Steel, Oct. 18. Practically any kind of scrap up to 10 per cent can be used in the blast furnace without additional fuel, he stated.

He explained that scrap is one of the greatest cost reducers in operation of blast furnaces and pointed out the problems which scrap dealers and furnace operators will face in the near future, because of the great production of alloy steel scrap. He described the effect of stringy turnings on the furnace, and discussed various other commodities sold by scrap dealers. In his opinion, the future scrap dealer will have to surround himself with high-class labor and a metallurgist.

"Your business is responsible for the blast furnace taking a back seat," said Mr. Steinbacher. "The country is becoming scrap minded. Frequently there is a conflict between the blast furnace and open hearth man. When the latter has difficulty with his melt, he may blame the pig iron, because of the scrap used in the blast furnace. This is unjustified because the open hearth and blast furnace use the same scrap, the difference being that the open hearth uses 60 per cent scrap and the blast furnace only 10 per cent."



Steel strip being cold-rolled to form motor car wheel rims in a rim manufacturer's plant. The strip is hot rolled at the steel mills, and sold either flat or partially formed to the rim companies—taking at least 165,000 tons of steel annually in normal times

Large Uses of Steel In Small Ways

229th Article ◆ Motor Car Rims

ESTIMATED conservatively, 165,000 net tons of steel is consumed annually, in normal times, in a year's production of rims for passenger cars, trucks, motorcycles and airplanes in this country. Official statistics on steel for this purpose have not been compiled, but fortunately a careful record has been kept on the output of rims, and from this fairly accurate figures have been assembled based on manufacturers' estimates of rim weights.

The number of rims made in the seven years 1925-1931 was 157,671,473, of which 139,291,671 were for passenger cars, 17,888,668 for trucks, 442,122 for motorcycles, and 49,012 for airplanes.

80 Per Cent for Light Cars

Estimates of weights for rims for light passenger cars range from 12 to 14 pounds each. Eighty per cent of car output falls in this class, and considering 12 pounds as the more representative figure, it is evident at least 95,513 tons of steel has been consumed in making light-car rims, annually, during the past seven years.

Rims for other passenger cars are estimated by makers at 16 pounds; steel consumption in this class figuring to 31,838 tons, yearly average.

Truck rims average 30 pounds, and as the number of such rims has totaled 17,888,668 in the seven years, a yearly consumption of 38,332 tons is indicated.

Motorcycle rims average 5 pounds. Production in seven years has been 442,122; and annual steel consumption, approximately 157 tons. Though 49,012 airplane rims were manufactured, no allowance is made in this compilation for the steel consumed, as the amount is relatively small, with the trend toward aluminum.

In addition to the foregoing, approximately 5000 tons of steel was used in the seven years in the manufacture of rings with which to hold tires on rims, a leading maker estimating that the number of rings made in that period was 10 per cent of the total number of rims for passenger cars.

In these seven years, when rim production alone required at least 1,160,880 tons of steel, total consumption of finished steel for motorcar production was 31,669,034 tons, as shown by Steel's official distribution figures. The number of passenger cars and trucks built in the United States in the seven years was 27,431,835.

Manufacturers say rims average five to a car. If the rim output be divided by the number of motorcars built in the United States the average will appear to be 5.7, though this is not a strictly accurate gage, as not all the rims made in the United States are placed on cars produced in this country.

Some interesting comparisons may be drawn from the official rim figures. For example, in the eight years preceding the period to which we have referred, the number of rims made for motorcycles was 1,012,549; though in the past seven years the number dropped to 442,122. On the other hand, airplane rims numbered only 748 in the early period, and 49,012 in the later, attesting the growing popularity of winged travel.

Truck Rims Show Good Gains

Truck rims increased from 1,125,694 to 17,888,668. Their proportion of total rim production rose from under 1 per cent to 12 per cent.

The figures also are illuminating in regard to "styles" in rims. In the early period balloon-tire rims constituted only 4.2 per cent of total output; in the second period, 66.6 per cent. Clinchers were the most popular types formerly, accounting for 56 per cent; but in 1925-1931 they fell to 7.3 per cent.

Carrying the comparison up to more recent date: In the past seven years the proportion of drop center rims was only 15 per cent. In the first six months of 1932, however, more than half of all the rims made were of this type. Flat-rimmed balloons had dropped to only 2.7 per cent; and clinchers formed only a fraction of 1 per cent.

Automotive rim production for 1932 is likely to amount to 7,500,000, one-third the annual average in the preceding seven. None was listed for airplanes in the first six months, and only 649 for motorcycles.

In 1904 and 1905 the clincher rim was practically the only type. In 1906 the straight-side, quick detachable rim came into use; in 1910 the straight-side split rim developed. These gradually forced out the clincher, and in 1926 the drop-center rim was introduced. Since then, the drop-center has increased in popularity, and has superseded other types, until nearly 100 per cent of new car equipment is of this type.

Balloon tires came in about 1923. Practically all rims now made are for balloon tires; even those for

(*Please turn to page* 29)

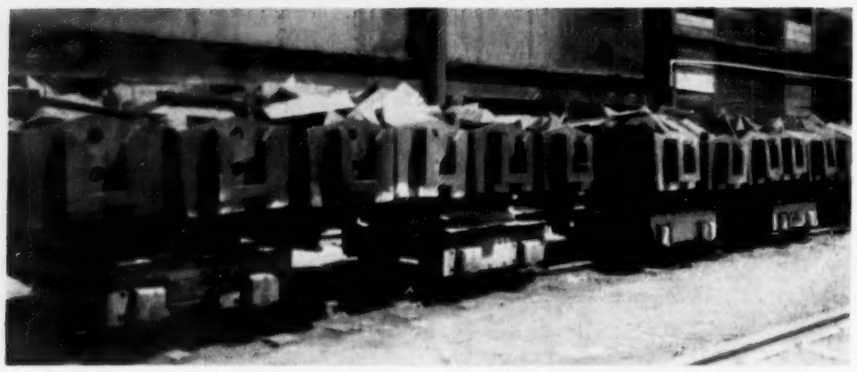


Fig. 1—Several welded charging boxes which have been in service at No. 2 open hearth of the Lukens Steel Co. for two and one-half years

Welded Steel Charging Boxes Withstand Service Test

By EVERETT CHAPMAN
Director, Engineering and Research, Lukenweld Inc.

TWO and one-half year ago, Lukens Steel Co., Coatesville, Pa., through its subsidiary, Lukenweld Inc., placed in service 70 welded steel open-hearth charging boxes. This type of box as well as a charging box buggy made by the same method were described in the Jan. 11, 1932, issue of STEEL.

These boxes were designed from the welded steel view point which, in brief, disregards the demands of other fabricating processes and proceeds from an engineering consideration alone to place a minimum amount of steel in the positions where it will meet best the imposed loads. It was not found necessary to copy the old design, even though the use of steel castings inserted in a welded assembly is on the increase. The predictable character of the construction allowed a simpler peel end to be used.

A few of the welded boxes which have withstood a two and one-half year battering around the yards of the Lukens Steel Co. are shown in Fig. 1. The entire weight of the box and scrap piled into the box hangs on a Lukenweld type HI weld. Fig. 4 shows a new development in the peel end in which the metal has been distributed more efficiently with a corresponding further decrease in weight of the box.

The opposite end of the box, whose blunt taper is necessary for riding the scrap, is pressed from a sheet large enough to accommodate the largest box which the company may be called upon to build. A stock of these pressed ends such as are shown in Fig. 5 is kept on hand at all times and they are merely gas cut down to the size of any particular box. The sides and bottom are formed from one piece of ¾-inch steel plate which insures a uniformity of wall thickness not previously enjoyed.

Show Good Performance

This thoroughly proved type of construction presents to the operating man the following cost statistics. A box 58 inches long, 30 inches wide and 24 inches deep, which formerly weighed 1500 pounds, was built at a weight of 1000 pounds and can be sold commercially in quantities for $55 each. It is to be noted that the 1000-pound construction throughout the group of 70 boxes and over the two and one-half year period showed no cracked peel ends, no pitting of the sides or ends, and not one of the boxes has had to be replaced. No maintenance has been expended against these boxes and at this time it is difficult to predict just what will terminate the life of the original 70 units. This is a severe challenge to any operating record.

Fig. 2 shows a battery of four boxes on a welded steel charging box buggy ready to go to work. This buggy, also designed from fundamental principles, weighs 1700 pounds less than the buggy which it replaced. This reduction in weight is justified by two factors: First, the manner in which

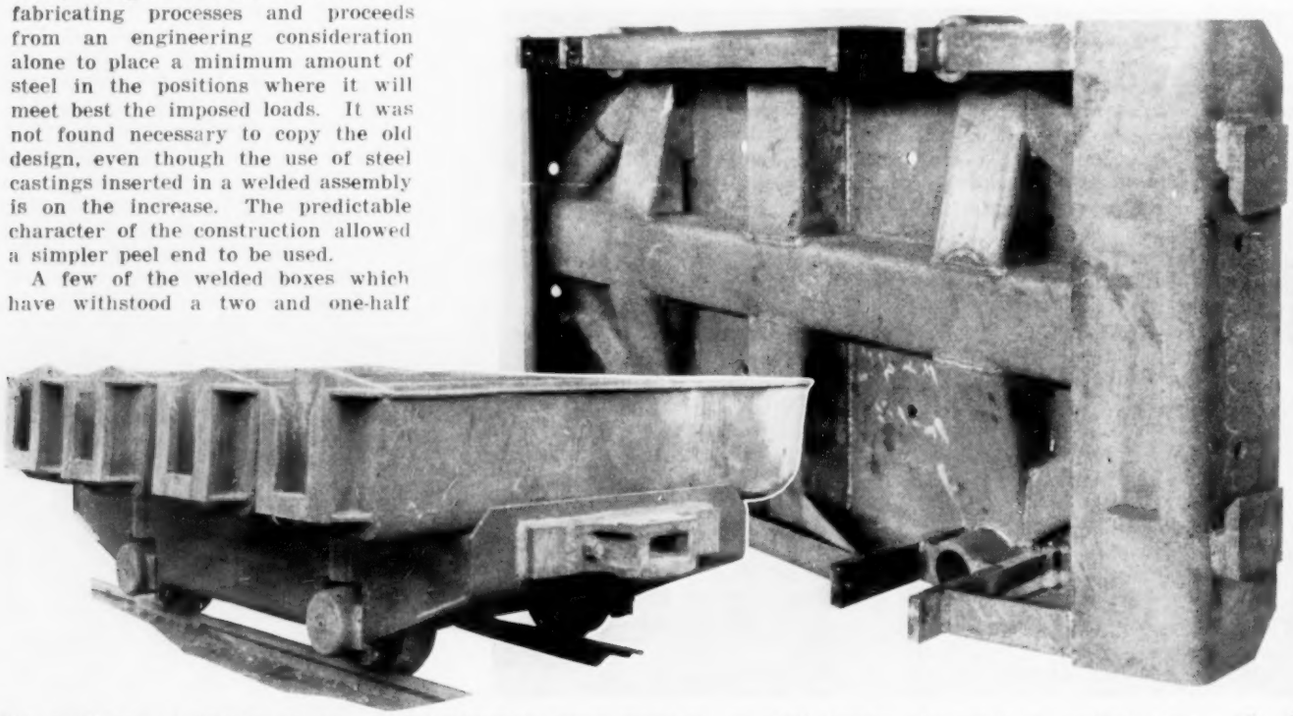


Fig. 2 (Left)—A battery of four welded charging boxes mounted on their buggy also built of welded steel. Fig. 3 (Right)—The underside of the buggy reveals the construction which provides strength where strength is required

the strength characteristics were maintained as shown in Fig. 3; and second, the fact that the two and one-half years operating record of this buggy is as bright as that of the boxes it carries.

The bed and sides of the buggy are in one piece bent to shape and gas cut as necessary for welding the end and bumper pieces and the wheel housings in place. Pieces of plate welded to form supports for the axle bearings eliminate the usual type of journal box bearings.

The underside of the car body is reinforced by means of plates bent into channel sections to take care of longitudinal and transverse stresses and to accommodate the spring mountings on the wheels. Particular care was given in this design to the arrangement of the box sections supporting the ends of the body in such manner as to carry the strains of a train of cars in motion from axles to the bumpers through the spring line.

Each car with four boxes considered as a transportation unit weighs 3700 pounds less than the unit previously hauled. With the open-hearth floor 25 feet in the air, a train of ten welded cars will show a saving at the coal pile of 925,000 foot-pounds per trip. This also is a challenge to steel mill operating costs.

Acetylene Association To Stage a Unique Session

A session said to be unlike any previously attempted in this country will be a feature of the thirty-third annual convention of the International Acetylene association at the Penn Athletic club, Philadelphia, Nov. 16-18. This session on Wednesday evening, Nov. 16, will consist of a three-act industrial drama portraying technical and practical factors of plant rehabilitation under today's economic conditions.

It is said that this type of technical meeting has been used with considerable success in Soviet Russia as a part of the development of the 5-year plan and in support of other major industrial projects. A cast of leading scientific and engineering authorities will assure the technical soundness of the program.

All sessions of the convention will be open to interested individuals and an imposing list of speakers is being arranged. Subjects scheduled for discussion are: Maintenance of motor truck equipment; welding in the automotive industry; welded piping; design of industrial piping; residence and domestic piping; welding of steel castings; production cutting; x-ray testing of welds; training and testing of the welder; and how to organize a welding department.

H. F. Reinhard, J. B. Colt Co., 30 East Forty-second street, New York, is secretary of the association.

Fig. 4—Weight has been decreased and metal more efficiently distributed in a new type of box peel

Large Uses of Steel in Small Ways—Car Rims

(*Concluded from page 27*)

trucks. Low-pressure "super balloons" are just beginning to be popular; so far, these tires with only 12 to 20 pounds pressure, as against 32 to 40 for regular balloons, are used only for change-over optional equipment on the lighter cars, though some rim makers believe they will win as much favor as regular balloons. Rims for the "supers" are only 14 to 16 inches in diameter.

Formerly manufacturers counted on a large field for replacement once estimated as high as 20 per cent, but as types have changed and methods have been improved, and better steel used, this market is not so fertile.

Low carbon steel is generally used for rims. It is hot rolled at the mills, 3 to 9 inches wide, and 0.109 to 0.198-inch thick. Some rim makers purchase it flat; others, partially formed to shape. The fabricating process is a cold-rolling operation. The strips are formed into hoops and welded, various means being employed.

Probaply 90 per cent of total wheel production in the past two years has been of the wire type, in which steel spokes have laced the hub shell and rim into one unit. The spoke has been either welded to the rim, or threaded, passed through the rim, and secured by means of a nipple.

In this particular, steel has replaced wood, as manufacturers say that more than 90 per cent of the wheels made eight years ago had wood spokes. When wood spokes are used, the rim is shrunk on spoke-ends, with a tenon on the spoke projecting through the rim. Disk wheels, in which the disks were pressed into the rims, long were popular, but are less in evidence now. Various special types of wheels in which rims, spokes, or disks, and hubs all form one integral unit, are manufactured.

Awarded Grasselli Medal For Research in X-Rays

The Grasselli medal of the American Section of the Society of Society of Chemical Industry will be awarded to Prof. George L. Clark, University of Illinois, Urbana, Ill., at a meeting of the society and other co-operating groups to be held in Grand Central Palace, New York, Nov. 4. The award is made to Prof. Clark for his work on x-ray research as applied to chemical problems and more specifically for papers presented on this subject.

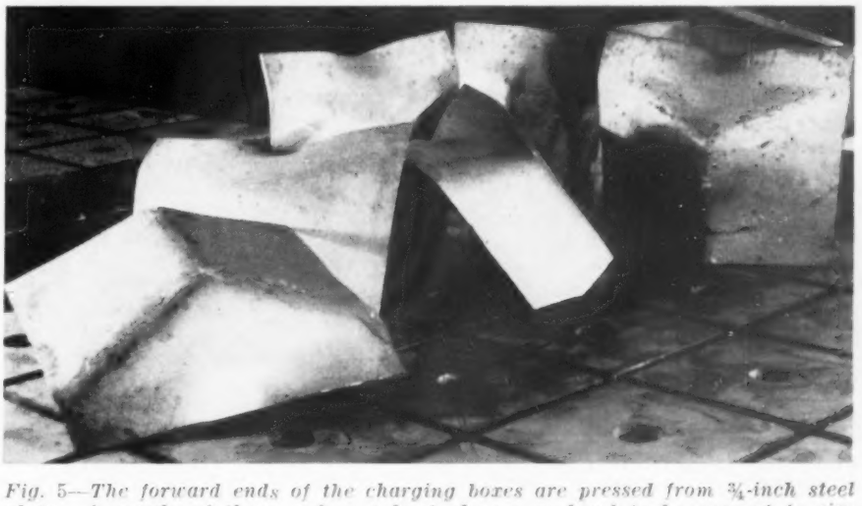
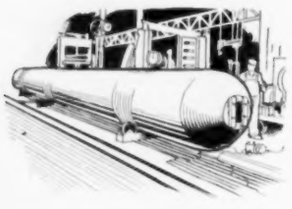


Fig. 5—The forward ends of the charging boxes are pressed from ¾-inch steel plate. A supply of these ends are kept always on hand to be gas cut to size for any particular box

Making the Most of

METHODS AND MATERIALS

A WELL-known authority on chromium plating stresses the following properties of chromium: Extreme hardness; resistance to wetting by virtue of an oxide film which forms on the surface of the plate; low coefficient of friction, especially when a lubricant is present; and resistance to tarnish. He states that if these advantages are combined in a properly designed cutting tool for carefully selected applications, some striking benefits are obtained. In the first place, due to the remarkable wear resistance of chromium, the tool should last longer. Next is the salvage feature, since some tools may be replated almost indefinitely. Moreover, aside from actual economy is the fact that a chromium-plated tool or gage will achieve better accuracy because its dimensions do not change as rapidly. Another source of economy is the saving due to less frequent breakdowns with consequent tool setting. This is particularly noticeable in the case of multiple drilling machines, gang slitting saws, and the like.



PRESSURES of 200 to 225 pounds per square inch were the highest used until the steam turbine came into use. Today one plant is using successfully a pressure of 1840 pounds. Riveting is not satisfactory for vessels to be used at pressures as high as 500 pounds for they can not be made to have tight joints. For such a pressure, rivets 5 inches long and 1 or 1¼ inches diameter would be required. When high pressures were first introduced, it was necessary to use seamless forged drums which could be made in only a few steel plants; with the development of welding, however, and approval of the method in safety codes, fusion welded vessels can be made to withstand any practical pressure, furthermore, the number of plants which can fabricate these vessels is not limited.

\$ \$ \$

By using steel straps for tension members, channels or T-sections for compression members and welding the entire structure, a large electrical manufacturer announces a roof truss of simple construction, one-third lighter than former trusses, without sacrifice of strength.

\$ \$ \$

Perhaps the largest outlet for 18-8 chrome-nickel steel wire thus far is for screens and wire cloth. One company has woven as fine as 0.0045-inch wire into 100-mesh cloth and as coarse as 0.020-inch into 14-mesh. Wire for weaving usually is furnished bright annealed, but the bright annealing must be watched carefully for the slightest discolored condition will be apparent readily in the cloth. The wire must also be free from kinks which will produce roughness on the cloth. On fine 200-mesh cloth with a 6-foot loom only 4 or 5 feet will be turned out in a working day, while on 40-mesh the production will be up to 20 to 25 feet. The greater part of this wire cloth is for stationary or centrifugal filters in the chemical industry as well as in paper mills.

\$ \$ \$

Increasing interest is developing in the use of 5 per cent chrome steel for fittings for the oil industry and certain chemical processes in which steel of this analysis has been found to keep its temper and be unusually resistant to corrosion. Some difficulty at frrst was encountered in removing the risers from these castings. When cutting off the risers with an oxyacetylene torch, cracking of the metal occurred. It was found that preheating of the castings to about 600 degrees Fahr. has eliminated this cracking; in other words, the practice is the same as that employed in removing risers from medium and high-carbon steel castings. It also was found preferable to employ several small risers rather than one or two large risers; this method reduced the amount of heat which had to be applied and made it possible to cut closer to the casting, thus reducing the amount of subsequent machining.

\$ \$ \$

Fatigue is perhaps the most common type of failure in machine parts. It is comparatively rare in structures. Pressure vessels seem to be in an intermediate class. The endurance limit seems to be the best criterion for judging resistance of a metal to fatigue failure. At high temperatures, fatigue failure may be important below a certain temperature range, but above that range creep may become the dominant factor.

IN THE plant of a well-known manufacturer of automobiles, a saving of \$30,000 was effected in 60 days by the application of radiography to foundry methods used in the casting of engines. This sum included a saving not only in the foundry by the reduction of scrap parts, but also in the shop by the elimination of costly machining.

\$ \$ \$

A photoelectric relay which provides more sensitive control and at the same time will permit operation at a minimum light intensity of 3-foot candles instead of 10-foot candles are required in previous models has been developed by a large electrical manufacturer. Leakage is reduced by use of a flexible armored cable, thus providing better operation in damp atmospheres. Characteristic applications of the relay include the operation of magnetic counters, starting and stopping machinery and control of various mechanisms.

Scanning the Field of Technology

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Effect of Zinc Coatings on Endurance Properties

By W. H. Swanger and R. D. France, bureau of standards research paper No. 454, 16 pp., 11 illusts., 3 tables.

The effect of the surface alterations, resulting from the application and presence of hot-dipped galvanized and electroplated zinc coatings on the endurance properties of 0.02 per cent carbon open-hearth iron and 0.45 and 0.72 per cent carbon steels was determined by fatigue tests made with the rotating beam and axial loading machines. Rotating beam tests were made on polished but uncoated specimens, hot-dip galvanized specimens, zinc plated specimens and specimens acid pickled as for galvanizing. Axial loading tests were made on uncoated and galvanized specimens only.

Endurance ratios by the rotating beam method of test of the uncoated specimens varied from 0.38 to 0.70; by the axial loading method, from 0.31 to 0.59. Decrease in fatigue limit from that of the polished uncoated materials caused by the acid pickling was more marked in the quenched steels than in the annealed and tempered steels. The decrease varied from 0 to 40 per cent. A still greater decrease was caused by the presence of the hot-dipped galvanized coatings. The quenched and the tempered steels were affected more adversely than the annealed steels. Fatigue limits of the zinc electroplated specimens were equal to or greater than those of the uncoated specimens. Difference in the effects of the two types of coating is believed to be caused by the differences in the nature of the bond between zinc and steel and also by the differences in the structure and hardness of the two coatings.

—STEEL, 10-31-32

Practical Economies in Steel Casting Design

By F. A. Lorenz Jr., in The Foundry, October 1932, p. 20, 5 pp., 10 illusts.

Certain factors of design are germane to each method of fabrication, and the industry which best applies the fundamental principles pertaining to design secures a decided advantage over competing methods. This is true in steel castings. Here a knowledge of the characteristics and behavior of the steel in the mold and the practical application of the information in the conception of the casting, will result in economies of manufacture. Continual co-operation between the designer and foundryman is necessary to accomplish the desired purpose. This article is prepared from a paper presented at the symposium on steel castings before the joint meeting this summer of the American Foundrymen's association and the American Society for Testing Materials, Atlantic City, N. J.

—STEEL, 10-31-32

Electric Arc Welding as Applied to Steel Homes

By A. M. Candy, in Welding, October 1932, p. 581, 3½ pp., 6 illusts.

This article presents details of the steel house designed by Mills G. Clark, president of Insulated Steel Inc., and recently erected at Solon, O. The fundamental design is so simplified that shop fabrication and field erection are simple and economical. The entire design is based upon and made possible by the use of electric arc welding. Complete framing includes only 17 tons of sheet Armco iron, in three gages—20, 18 and 16. There is not a single rolled shape of the conventional structural steel form in the entire building. All steel work was shop fabricated in 11 days by two men and was field erected in 15 days by three men. With quantity production methods the time of both shop fabrication and field erection will be considerably reduced, it is said.

—STEEL, 10-31-32

Physical Properties of Heat Treated Cast Iron

By F. G. Sefing and M. F. Surls, bulletin No. 47 of the engineering experiment station of Michigan State College of Agriculture and Applied Science, 36 pp., 29 illusts., with bibliography.

Heat treatment of gray cast iron has been practiced industrially for many years. Three methods are used: Low-temperature annealing to remove casting strains; high-temperature annealing to reduce hardness and increase machinability; and quenching and tempering to increase hardness and strength. In this discussion the authors aim to show the effect of a number of annealing temperatures on the results obtained with two typical gray cast irons. It is also the aim of the authors to show the effect on cast iron of a simple water quench, as well as the influence of quenching and reheating to the common annealing temperature. An attempt has been made to show the importance of impact values and their lack of relationship with other common physical data. A few photomicrographs have been included to show the structural effects of the various treatments used. There is little explanation or theory advanced concerning the structural changes that take place. Reasons for the results are omitted so that the data may be permitted to stand upon their own merits.

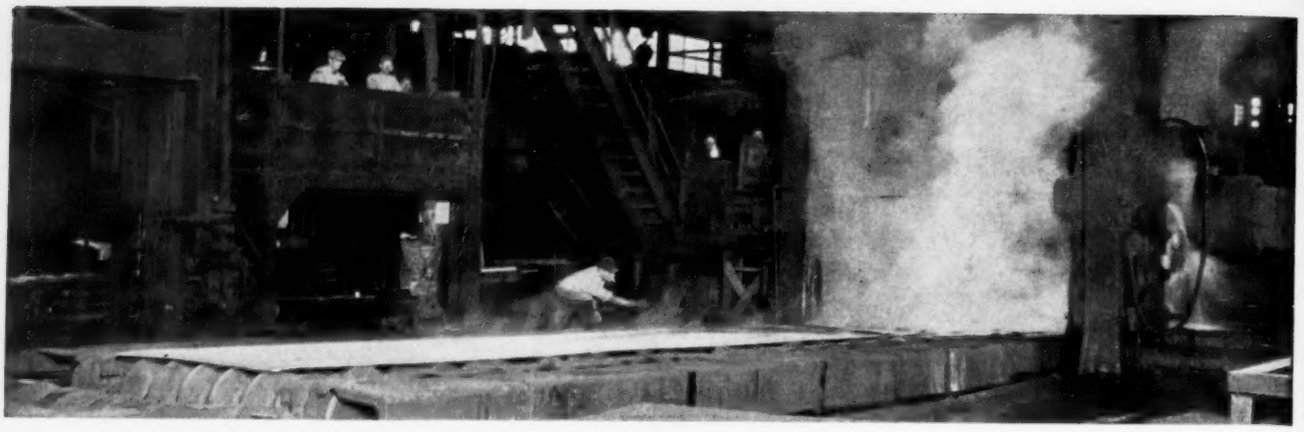
—STEEL, 10-31-32

Normalizing Tin Plate for Deep Drawing Purposes

By Edward S. Lawrence, in Blast Furnace and Steel Plant, October 1932, p. 763, 3 pp., 2 illusts.

Basic deep drawing properties of either tin plate or autobody sheet are present if both show microstructures with small, equiaxed grains. Such structure leads to the elimination of one or more drawing operations and often a re-annealing operation. Thus in the same manner that the automobile body industry benefited by the advent of the continuous normalizer so the advent of "normalized" tin plate has had a like effect on users of deep drawing tin plate. Two distinct methods for attaining these deep drawing characteristics are outlined, one involving the use of two-high mills and the newer method involving four-high continuous mills, the latter eliminating the actual normalizing treatment. Regarding the future of tin plate normalizing furnaces, if the conventional two-high mill can show production costs that can compare favorably in quality, quantity and delivery with the product from the four-high mill then such normalizing furnaces will continue to be built.

—STEEL, 10-31-32

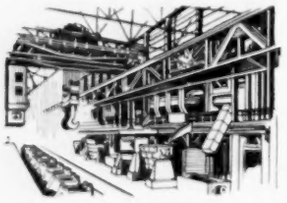


PROGRESS IN STEELMAKING

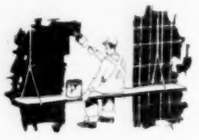
THERMIT welding of the main drive pinion teeth of a 40-inch 2-high blooming mill saved the company $580. The original cost of the pinion, steel and labor amounted to $780 while the cost of welding the teeth, labor and material was $200.

♦ ♦ ♦

Granulating blast furnace and open-hearth slags for utilization as a light concrete aggregate, and reclamation of metallic iron from the slag is being accomplished experimentally at a plant in the Chicago district by a machine recently introduced in this country. The unit includes a 46-inch diameter covered pot rotated at 500 revolutions per minute, or a peripheral speed of 3000 revolutions per minute, by a 20-horsepower vertical motor. Slag from the furnace in about a 10-inch stream enters the machine near the top where the internal diameter is about 8 feet, and while in transit to the bottom of the unit, passes through three curtains of water. The granulated product ejected from the machine is similar in appearance to blast furnace sinter. Water consumption of the spray system is 67 gallons per ton of slag granulated.



RELEASE of hydrogen in basic open-hearth baths of rimming steel is favored by keeping the temperature of the melt as low as possible, according to a well-known metallurgist. A higher temperature gives the steel greater power to retain this gas in solution and lessens the intensity of the boil. The temperature of the bath after melting down should rise gradually inasmuch as the fusion temperature of the bath at tapping time increases to the proper degree because of the loss of carbon.



PROTECTING and preserving the surfaces of galvanized corrugated sheets used for roofing and siding steel mill buildings is made possible by the application of a coat of a metal compound in liquid form. The material serves as a primer; affords permanent adhesion for the paint; protects the steel against the action of gases, smoke, acid fumes and brine; and, retards corrosion.

♦ ♦ ♦

Applying a grid-glow tube to a stroboscope has greatly extended its range and has resulted in the development of a new device known as the stroboglow. One of the most recent applications of this new device is to check belt slippage on pulleys under varying loads in order to determine the proper tension.

♦ ♦ ♦

Testing steel billets by the magnetic process at a mill in the East has afforded the company an increase of 5 per cent in the yield of prime stock and 8½ per cent in the yield of second-quality steel. The cost of testing a ton of billets by this method is nominally 50 cents.

♦ ♦ ♦

Uniform temperature distribution, precision of heat treatment and low alloy costs are afforded by a recently developed car-type furnace installed at a plant near Pittsburgh for annealing seamless tubes before and between cold drawing passes and for final annealing. The tubes are supported on alloy bucks, which are carried by refractory cross piers on the car platform, thus permitting the arrangement of burners to cause combustion beneath the charge and assuring close temperature uniformity.

♦ ♦ ♦

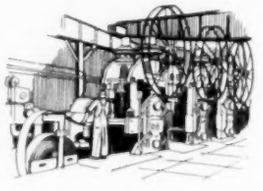
Substituting special glass ½-inch thick for common glass 1/64-inch thick, increasing water cooling of the target and changing the geometrical design have afforded an increase in the operating voltage of x-ray tubes from 200,000 to 440,000 volts. Tubes of this type now permit photographs to be made through steel 4 inches thick and in 15 minutes instead of several hours.

♦ ♦ ♦

Applying a 3/16-inch coating of wear-resisting alloy to a pair of diagonal rolls used for taking up the stretch of strip during reduction, has prolonged their campaign four times.

♦ ♦ ♦

Uniform flow lines in forgings are secured by a new method developed by a drop forging company. In making certain type forgings the heated billet is given successive passes in a motor-driven mill equipped with a set of 2-high tapered rolls of the "gun-barrel" type. The breakdown then is reheated, restruck to the finished forging, tempered, pickled, sandblasted and inspected.



COLD strip emerging from the last stand of rolls now can be inserted automatically into the entry slot of the reel by a recently developed guide. The new device in addition to straightening the stock, keeps it from bending, causes the reel to be actuated and withdraws from service as the coil enlarges.

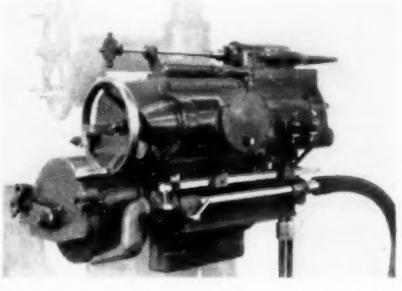
NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Equips Grinding Units with Automatic Cross Feed

Norton Co., Worcester, Mass., is offering a hydraulically-operated automatic cross-feed or wheel-traversing mechanism for its 10 x 12-inch surface grinding machines. Maximum efficiency from the grinding wheel is obtained since the wheel can be fed across the work at each reversal by increments that utilize the full width of the standard 1½-inch wheel.

The mechanism, shown herewith, is adjustable and provides any feed



Norton hydraulically-operated automatic cross-feed mechanism

from 1/16 to 1½-inch. The direction of the wheel traverse is reversed automatically by the use of dogs which can be set to accommodate any width of work up to 10-inches, the capacity of the machine. Oil is drawn from the same reservoir and by the same pump that supplies the table traverse mechanism, and an adjustable metering device in the apron controls the amount of feed. From the metering device the oil is delivered through a telescoping pipe to a traverse reverse valve mounted on the vertical slide.

◆

Redesigns Entire Line of Automatic Dial Scales

Kron Co., Bridgeport, Conn., just has announced the completion of the redesigning of its entire line of automatic dial scales, which includes portable and dormant platform scales, the latter shown herewith; bench scales, hanging pan scales, track scales, hopper scales, and crane scales. Design of the indicating mechanism has been changed and simplified. The number of bearings in the mechanism has been reduced to eight. Sector and pinion design

Dormant platform scale as redesigned by the Kron Co. recently

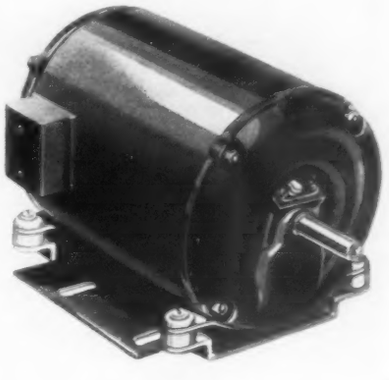
is such that no variation is possible in the mesh of the gearing.

Entire dial head is sealed completely to prevent entrance of dust and moisture which might affect the scale mechanism. The head also is arranged to swivel 360 degrees so that it may be turned to allow accurate reading from any direction.

◆

Compactness Features New Capacitor Motors

Howell Electric Motors Co., Howell, Mich., is manufacturing motors which combine the advantages of the capacitor types with the neat appearance of other types. These motors, shown herewith, have the capacitor mounted inside the motor frame so that the external lines are not disturbed by the capacitor box.



Howell motor with capacitor mounted inside the motor frame

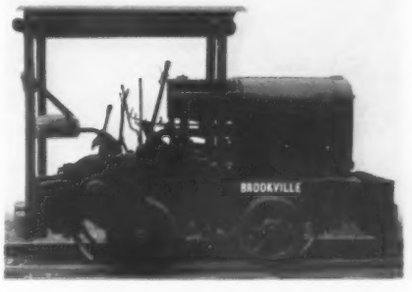
The equipment is manufactured in horsepowers from ⅛ to 1/3. Motors can be secured in either horizontal or vertical models, with waste-packed sleeve or double sealed ball bearing and with rigid or rubber mountings. They are manufactured with a large oil reservoir for the sleeve bearings with an abundance of wool yarn to hold sufficient oil to last for long periods without reoiling. If desired, stators and rotors for built-in equipment can be furnished by the company.

◆

Introduces New Series of Industrial Locomotives

Brookville Locomotive Co., Brookville, Pa., has recently announced a new series of locomotives designated B-1-30, supplied standard in all gages, in 4, 5, 6 and 7 tons weight. Speeds range, both forward and reverse, from 2 to 15 miles per hour.

Power unit employed in these new units, shown herewith, is the new I-30 McCormick-Deering industrial tractor. Locomotive features have been held to essentials, including a heavy unbreakable steel frame, sanders, dual brakes,



Five-ton, 36-inch gage Brookville locomotive designated B-1-30

dual spring journal boxes, etc. Steel tired drive wheels are standard equipment.

◆

Introduces Ball Bearing For Roller Conveyors

Logan Co., Louisville, Ky., has developed a ball bearing for roller conveyors which is designed especially for use in places where fine abrasive dust is present. A simple labyrinth construction is used, and dust particles which enter the labyrinth

are thrown out either by force of gravity or centrifugal force. No part of the shield comes in contact with any other part, and therefore the frictional qualities of the bearing are increased but an exceedingly small amount. The bearings are made in light, medium and heavy sizes.

◆

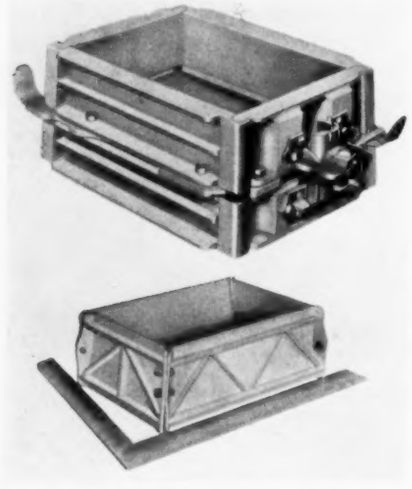
Belt Built Up of Woven Fabric Plies

B. F. Goodrich Co., Akron, O., recently announced transmission belting of a new type which is applicable for those machines where endless belting or belting laced with conventional fasteners is impractical. The new belt is built up of a greater number of plies of a specially woven fabric designed primarily to give the characteristics necessary when transmission belting is to be spliced endless right on the machine.

◆

Tapered Slip Flask Is Made of Aluminum

Great Lakes Foundry Sand Co., 2100 Penobscot building, Detroit, is distributing a new slip flask and flexible jacket designed by Jack Hamel, Detroit. As shown in the accompanying illustration, the new flask is tapered, is constructed of aluminum and has



Tapered flask (above) and flexible jacket (below) designed by Hamel

stiffening ribs to make its sides rigid.

A new feature is the wedged-channel corners, which it is claimed insures square corners. A three-groove flask pin has been adopted as standard equipment, although other types of pins are optional. The three-groove pin has four adjustments to take up for wear or to compensate for differences in plate ears. Pin centers are in excess of the longest dimension at parting line.

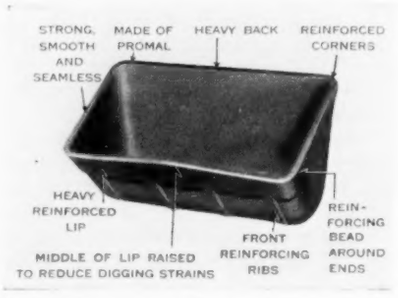
The new jacket which is shown in the accompanying illustration, is of the loose bolt type. Ribs are constructed at the corners and on the sides to prevent bulging.

◆

Elevator Bucket Made for Heavy-Duty Service

Link-Belt Co., Indianapolis, recently placed on the market a new cast elevator bucket for heavy-duty work. The new product, shown in the accompanying illustration, is designated style AAP, and is made in all popular sizes. Principal features include heavy back, heavy lip, reinforced corners, front reinforcing ribs, reinforcing bead around ends, and raised middle lip to reduce digging strains.

The new bucket, it is claimed, while



New elevator bucket recently announced by Link-Belt Co.

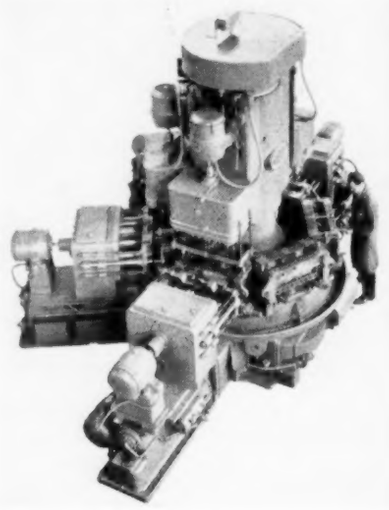
weighing and costing a trifle more, will result in notable economies through its longer life, accruing from a distribution of metal which insures the maximum in wear resistance and endurance.

◆

Builds Station Type Multiple Spindle Driller

National Automatic Tool Co., Richmond, Ind., has recently offered to the metal working industries a station-type hydraulic feed multiple spindle driller. The unit may be arranged with either 3, 6, or 8 stations and horizontal as well as vertical hydraulic feed drilling units. The particular machine, shown herewith, is arranged with six (4 working and 2 loading and unloading) stations. It is arranged with four vertical and four horizontal drilling heads.

Indexing of the table from station to station is accomplished by an automatic mechanical indexing mechanism and the entire machine is so interlocked that the indexing mechanism will not function unless all heads, both vertical and horizontal, are in their correct positions.

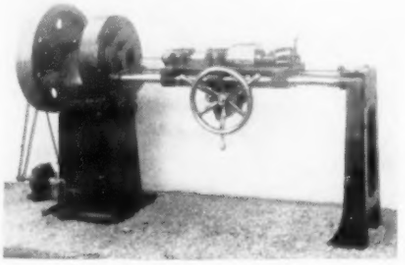


Natco station-type hydraulic feed multiple spindle driller

◆

Swaging Machine Reduces Valve Blanks

Langelier Mfg. Co., Providence, R. I., is manufacturing a water jacketed head swaging machine constructed with four dies, for use in reducing valve blanks before upsetting to eliminate turning and its attendant waste of material. The machine, shown in the accompanying illustration, is equipped with a handwheel operated rack and pinion feeding mechanism, having an automatic air chuck that grips the work on the forward move-



Langelier swaging machine designed for reducing valve blanks

ment of the saddle and releases it automatically at the end of the feed stroke.

Tendency of twisting hot stock during swaging is offset, as the chuck is allowed to rotate in split bearings, the proper amount of friction being applied to control the speed of rotation.

Markets Falter, but October Tops September

Election Holds Back Some Needs—Steel Rate Stays Close to 19½ Per Cent—More Prices Are Unsettled—Activity More Pronounced in Rails and Cars

ALTHOUGH the iron and steel markets are laboring increasingly under the uncertainty of the election and the exhaustion of the momentum generated by small buyers, the steelmaking rate is holding at 19 to 20 per cent and the levelling-off process developed too late in October to prevent the month bettering September in both bookings and production.

About Oct. 25, many producers equalled their September showing. The past few days the market situation has become spotty, with some interests still maintaining their mid-October activity, but in general the markets have lost much of their spirit and there is a tendency to drift until after election. Producers frequently are told of business held in abeyance.

A more unsettled price situation is evident. Concessions are believed to have been made on the 12,000 tons of steel, chiefly plates, purchased by the Pennsylvania for its equipment program. Tie plates and forging billets have been reduced $2 per ton. Reinforcing concrete bars are under pressure at Chicago. Manchurian and Dutch pig iron continue to vex eastern furnaces. Scrap prices are tending to drift downward. A strengthening factor is a more determined effort to hold the official market on cold-rolled strip to 2c, Pittsburgh.

Following the $3 reduction in rails, first orders for 1933 are appearing. The Lackawanna has placed 4000 tons for January delivery, and the Southern several thousand tons. Illinois Central will make provision for 6000 tons in its budget. Chicago Great Western is formally inquiring for 200 freight cars. Norfolk & Western will repair 600 hoppers in its shops, and the New York Central has a program involving repairs to 13,000 cars, which may be expanded, contingent upon an R. F. C. loan.

Structural steel awards, totaling 11,657 tons, dropped below the seasonal average. The several hundred thousand tons of inquiry actively before the industry is slow to reach the award stage, but the delay has the beneficial aspect that considerable tonnage probably will mature in time to supply work when most needed during the winter months. Concrete reinforcing bar awards also were below the average, at 4317 tons.

Automobile steel requirements continued disappointing but are increasing slightly. In fact, a modest expansion at Cleveland due principally to automotive releases was all that prevented the steel rate receding below 19½ per cent in the week ended Oct. 29. A further increase at Cleveland this week promises to offset a softer operating condition in other districts. The 19½ per cent rate persists by a narrow margin, and October probably will go down as a 19 per cent steel month, compared with 17 for September and 14 for August.

Alco Products has booked 3500 tons of 42-inch steel pipe for Ft. Wayne, Ind. Hot strip steel bookings show an encouraging gain at Pittsburgh. Bids close Dec. 14 on 7200 tons of steel for a cruiser. Chicago is experiencing a seasonal slump in wire products. Farm implement manufacturers there tend to become slightly better buyers.

Shipments of pig iron in most districts in October developed gains of 45 to 100 per cent. Many foundries in the Middle West are resuming on a slight scale, automotive work being prominent. There has been a noticeable disposition of founders to lay in a little stock. Coke also has been moving better.

STEEL'S composite of iron and steel prices is unchanged this week at $29.32 and the finished steel composite at $47.70, but the steelworks scrap index is off 13 cents to $6.83.

Composite Market Averages

	Oct. 29	Oct. 22	One Month Ago Sept., 1932	Three Months Ago July, 1932	One Year Ago Oct., 1931	Ten Years Ago Oct., 1922
Iron and Steel Composite	$29.32	$29.32	$29.32	$29.47	$30.74	$43.60
Finished Steel Composite	47.70	47.70	47.50	47.71	48.22	59.55
Steelworks Scrap Composite	6.83	6.96	7.04	6.06	8.50	18.45

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Oct. 29, 1932	Sept., 1932	July, 1932	Oct., 1931
Pig Iron				
Bessemer, del., Pittsburgh	$15.76	15.76	15.76	18.16
Basic, valley	14.00	14.00	14.00	16.50
Basic, eastern, del. eastern Pa.	13.50	13.75	14.25	16.35
No. 2 foundry, del. Pittsburgh	15.76	15.76	15.76	18.16
No. 2 foundry, Chicago	15.50	15.50	15.50	17.20
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	17.75	17.75	18.00	18.00
**No. 2X, Eastern, del. Phila.	14.01	14.26	14.76	17.26
Malleable, valley	14.50	14.50	14.50	16.90
Malleable, Chicago	15.50	15.50	15.50	17.10
Lake Superior charcoal, del. Chi.	23.04	23.04	23.04	25.04
Gray forge, del. Pittsburgh	15.63	15.63	15.63	17.53
Ferromanganese, del. Pittsburgh	73.24	73.24	73.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

Coke				
Connellsville, furnace, ovens	2.00	2.00	2.00	2.40
Connellsville foundry, ovens	2.75	2.75	3.00	3.25
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	Oct. 29, 1932	Sept., 1932	July, 1932	Oct., 1931
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.89
Iron bars, Chicago	1.65	1.65	1.65	1.70
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.75	1.75	1.75	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.79½	1.79½	1.79½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.70	1.70	1.70	1.85
Sheets, No. 24 hot ann., Pitts.	2.10	2.10	2.20	2.40
Sheets, No. 24 galvan., Pitts.	2.85	2.75	2.85	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
Sheets, No. 24 hot ann., Chi.	2.25	2.25	2.35	2.55
Sheets, No. 24 galvan., Chi.	2.90	2.90	3.00	3.05
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.90
Tin plate, per base box, Pitts.	4.75	4.75	4.75	4.75
Scrap				
Heavy melting steel, Pitts.	$9.25	9.50	8.35	10.45
Heavy melting steel, eastern Pa.	7.25	7.25	6.25	8.20
Heavy melting steel, Chicago	6.00	6.00	4.50	7.75
No. 1 wrought, eastern Pa.	7.25	7.25	6.25	9.20
No. 1 wrought, Chicago	5.25	5.25	4.00	8.00
Rails for rolling, Chicago	8.25	7.25	6.60	10.50

Sheets

Automotive Orders Fail to Expand Materially—Pennsylvania Railroad Is Placing 2500 Tons

SHEET PRICES, PAGE 37

Pittsburgh—Considerable tonnage ordered prior to the beginning of the third quarter has been specified. Some mills having placed an Oct. 15 deadline on orders taken before Sept. 30, were successful in eliminating some low priced tonnage. Since then there has been little test of prices. Black sheets continue to move at 2.10c to 2.20c, Pittsburgh, and galvanized are 2.85c, base. Full-finished grades, such as autobody and heavy and light gages of cold-rolled, continue irregular in view of recent automotive orders, although prices of 2.10c for heavy cold-rolled and 2.60c for light cold-rolled are fairly representative. No. 20 autobody is 2.65c to 2.75c. Pennsylvania railroad is buying 2500 to 3000 tons of sheets for car building.

New York—Sheet buying is spotty, with little general improvement. Prices are unchanged. Connecticut is taking bids on approximately 125 tons of sheets for automobile license plates.

Boston—Sheet prices are steadier, with buying this month slightly ahead of last although some of the larger manufacturing consumers are specifying sparingly. A Wheeling, W. Va., mill will roll half of the 750 tons required for Massachusetts automobile plates, or that portion awarded the L. E. Zurbach Steel Co. at 3.07c, delivered, for No. 24 hot annealed.

Philadelphia — While all grades are holding at the levels originally announced for fourth quarter, there appears to be better stability of prices as noted two weeks ago. Automotive buying is more promising. Stovemakers are buying substantial quantities of enameled stock.

Cleveland — Though Chevrolet's program calls for 60,000 cars over the remainder of this year, it apparently has not yet formally released additional material. As previously reported, it originally inquired for sheets for 50,000 units, but actually ordered for considerably less, and sheetmakers here contacting with the automobile industry are not aware of further releases. Miscellaneous automobile orders are fairly well sustained, the local sheet mills increasing production recently. Though it is the season for stove and radio manufacture, little improvement in demand is noted; orders from manufacturers of washing machines are moderately better. Except for the usual concessions on material for automobile builders and barrelmakers, prices are steady.

Cincinnati — Shrinking specifications for galvanized sheets the past week were offset by railroad purchases. Therefore, production schedules were unchanged.

Chicago—Sheet demand has lost some of its recent activity and demand barely is holding its own. Mills are maintaining operations around 20 per cent. Prices have been affected somewhat by weakness in other districts. Most orders for hot-rolled annealed sheets recently have been taken at 2.30c, base, but 2.20c prevails on some business. Galvanized are relatively steadier at 2.95c.

St. Louis—Orders for galvanized roofing material are fair, though less than seasonal. Moderate expansion in sales to the petroleum industry is noted.

Birmingham, Ala.—The low price of cotton again appears to be effecting demand for sheets in the rural areas. Mill operations are irregular.

Go to Chicago in 1933

American Institute of Steel Construction, New York, which held its 1932 convention at Pittsburgh, Oct. 20-21, will hold its 1933 convention in Chicago.

CURRENT FINISHED STEEL PRICES

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10

(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, delivered	1.70c
New York, delivered	1.90c
Birmingham, base	1.70c
Philadelphia, delivered	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, delivered	2.01c
New York, delivered	2.05c
St. Louis, delivered	2.04c
Birmingham, base	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.10c to 2.20c
Gary, Ind. Harbor, base	2.20c to 2.30c
Chicago, delivered	2.25c to 2.35c
New York, delivered	2.45c to 2.55c
Philadelphia, del.	2.41c to 2.51c
Birmingham, base	2.35c
St. Louis, delivered	2.54c
San Francisco, c.i.f.	2.85c
Detroit, delivered	2.28½c

GALVANIZED NO. 24

Pittsburgh, base	2.85c
Gary, Ind. Harbor, base	2.95c
Chicago, delivered	3.00c
Philadelphia, delivered	3.06c to 3.16c
New York, delivered	3.10c to 3.20c
Birmingham, base	3.00c
St. Louis, delivered	3.19c
San Francisco, c.i.f.	3.50c

AUTOBODY NO. 20

Pittsburgh, base	2.65c to 2.75c

FURNITURE

Pittsburgh, No. 10 heavy	2.55c to 2.65c
Pittsburgh, No. 20 light	3.05c to 3.15c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.30c to 2.40c
Gary, base	2.40c to 2.50c
St. Louis, delivered	2.77½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.10c
Gary, Ind. Harbor, base	2.20c
Chicago, delivered	2.25c
Philadelphia, delivered	2.41c
New York, delivered	2.55c

COLD ROLLED NO. 20

Pittsburgh, base	2.60c
Gary, Ind. Harbor, base	2.70c
Chicago, delivered	2.75c
Philadelphia, delivered	2.91c
New York, delivered	2.95c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.: Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, delivered	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Buffalo, delivered	1.85½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, delivered	1.94c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, delivered	1.75c
New York, delivered	1.87c
Boston, delivered	2.00½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, delivered	1.91c
New York, delivered	1.95c
Boston, delivered	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.35c

IRON

Chicago, base	1.60c
New York, delivered	1.85c to 1.90c
Philadelphia, delivered	1.81c to 1.86c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
*Chicago, billet	1.50c to 1.60c
*Chicago, rail steel	1.30c
Philadelphia, cut lengths	1.86c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Base, Pittsburgh

10,000 to 19,999 pounds	1.70c
20,000 to 59,999 pounds	1.65c
60,000 to 99,999 pounds	1.60c
100,000 pounds and over	1.57½c

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Tin and Terne Plate

Per 100-pound box, Pittsburgh

Tin plate, coke base, cont.	$4.75
Tin plate, coke base, stock	3.85
Long ternes, 24, unassorted	2.80c

Gary, Ind., base 10 cents higher

Alloy Steel

Hot Rolled—F.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O.

Hot rolled; base 2.45c to 2.65c, mills; differentials to various consumers

S.A.E.*	Alloy Diff.	4600 .20 to .30 Mo. 1.25-1.75 Ni. 1.05
2000	0.25	5100 .80 - 1.10
2100	0.55	Cr. 0.45
2300	1.50	5100 Cr.
2500	2.25	spring 0.20
3100	0.55	6100 bars 1.20
3200	1.35	6100 Spring 0.95
3300	3.80	Cr., Ni., Van. 1.50
3400	3.20	Carbon van. 0.95
4100 .15 to .25 Mo	0.50	9250 (flats) 0.25 9250 (rds., sq.) 0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide, Pitts.	1.45c
Do., Chicago	1.55c
Do., del. Philadelphia	1.76c to 1.81c
Do., del. New York	1.80c to 1.85c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
*Cold-roll, strip, Pitts., Cleve	2.00c
Worcester, 3 tons over	2.20c

Rivets, Wrought Washers

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleveland	70, 10 and 5 off
Washers, c.l., Pitts. dist.	$6.50 to 6.75 off
Do., Chicago district	7.00 to 7.50 off

Rails, Track Material

Standard rails, mill	$40.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	23.00 to 25.00
*Light rails, 25-45, mills	$30.00
Light rails, Chicago	$34.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.40c
Spikes, boat, barge, Pitts.	2.65c
Track bolts, Chicago	3.50c
do., standard, jobbers	73 off list
*Tie plates, Pitts.	$35.00
Tie plates, Chicago	$35.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in. ..... 75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do., less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Steel sheet piling, Pitts.	1.90c

Bars

Gains in Tonnage Are Maintained—October Exceeds September in Tonnage

BAR PRICES, PAGE 37

Chicago — While soft steel bar specifications show little further improvement, recent gains are well maintained. Demand is principally from small miscellaneous consumers. The farm implement industry is taking larger tonnages, but the total still is small. Automotive requirements are increasing slowly and orders from railroads continue light. Rail mill operations are steady; shipments of reinforcing bars are declining. Prices are steady at 1.70c, Chicago, for soft steel bars and 1.50c for rail steel.

Boston—Common steel bar buying is light, with the price steady at 1.60c, Pittsburgh, even in small lots. Alloy and forging bars are also dull.

New York—Commercial steel bars are featureless and unchanged at 1.60c, Pittsburgh.

Philadelphia—Commercial steel bar demand is spotty. Aside from some railroad buying, it appears negligible. Prices are unchanged at 1.60c, Pittsburgh. Common iron bars are moving slightly better than a month ago at 1.50c to 1.55c, Pittsburgh.

Pittsburgh—Gain of October over September in mill tonnage of merchant bars was slight. Chevrolet Motor Co. having placed a blanket order, is specifying for its models. The recent change in forging billets has not affected forging quality bars. Carbon steel bars are based on 1.60c, Pittsburgh, for small orders.

Cleveland—The automotive industry has not yet accelerated steel bar purchases and railroads are taking little material. Nevertheless, miscellaneous orders hold up fairly well and include some good releases from farm equipment and machinery builders. The price is steady at 1.65c, base, Cleveland. A local mill now is making a hot-rolled bar to a tolerance of 0.002 or 0.003-inch, compared with 0.007 or 0.008-inch for the ordinary commercial bar. In producing it, an unusually high finish is imparted. The bar is finding considerable demand among manufacturers of machine bolts.

Tin Plate Operations Show Slight Decline

Tin Plate Prices, Page 37

Pittsburgh—Tin plate operations were off fractionally last week to 40 to 45 per cent, as against an average of 45 per cent two weeks ago. Day-to-day specifications are light and tin mills find the market without special feature. Some statement as to the price of tin plate will be made next month.

New York—A new tin plate price is not likely to be announced much before December, according to indication. Specifications are light.

Cold-Finished Orders Better in October

Cold Finished Prices, Page 37

Pittsburgh—October was appreciably better in specifications for cold-finished bar producers, due to a few good orders from motor car makers. Several jobbers and other small consumers bought in better volume last month. For attractive orders, 1.70c, Pittsburgh, is base, with full quantity extras observed.

Plates

Pennsylvania Railroad Places 8500 Tons for Car Work—Cruiser Will Take Tonnage

PLATE PRICES, PAGE 37

Chicago — Plate demand is dull and prospects for improvement in requirements of several leading consumers are unfavorable. Occasional inquiries are appearing for oil and water tank construction, but railroads and freight car builders are supplying little business. Plates continue fairly steady at 1.70c, Chicago.

Boston—Plate buying has improved, with some gain in miscellaneous demand. Needs of the New Haven railroad for freight car and locomotive repairs are uncertain. Oil burner builders continue to consume a fair tonnage. Prices are unchanged at 1.70c, Coatesville, Pa.

New York—Plates are less active than a week ago. Some small oil and railroad business has appeared.

Philadelphia—An eastern mill and a West Virginia producer are the only ones reported to date as having shared in the distribution of flat rolled products by the Pennsylvania railroad. Bids will be opened Dec. 16 on 7200 tons of plates, shapes and bars for cruiser No. 39.

Cleveland—Tank and boiler work apparently has slowed up for the time, but there has not been much recession in small, miscellaneous orders. The local 152 and 112-inch mills were on all last week, and probably will continue this week.

Pittsburgh—Construction is beginning on the refinery near Kane, Pa., for the Quaker State Oil Co., for which a round tonnage of plates was entered a short time ago by the Pennsylvania Engineering Works. About 8700 tons of plates have been awarded by the Pennsylvania railroad to Central Iron & Steel Co., Harrisburg, Pa., for car building. The base price of 1.60c for steel plates is nominal.

Contracts Placed

8700 tons, plates for construction of 1285 box and automobile cars, Pennsylvania railroad, to Central Iron & Steel Co., Harrisburg, Pa.

225 tons, tanks, Valley Oil Co., Middletown, Conn., to Chicago Bridge & Iron Works, Chicago.

200 tons, barge, Sun Oil Co., Philadelphia, to American Bridge Co., Pittsburgh.

200 tons, two tanks, Texas Co., East Hartford, Conn., to Petroleum Iron Works, Sharon, Pa.

140 tons, standpipe, Morrisville, Pa., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

130 tons, tanks, Ford Bros. Inc., New Haven, Conn., to Chicago Bridge & Iron Works, Chicago.

100 tons, 16-inch water pipe, Roseburg, Oreg., to Beall Pipe & Tank Corp., Portland, Oreg.

100 tons, 65 tons, United States engineer, Memphis, Tenn., to Pidgeon-Thomas Iron Co., Memphis; remainder for 550-gallon tanks, engineer, Huntington, W. Va. to Birmingham Tank Co., Verona, Pa.

Unstated tonnage, 500 small buoys, United States engineer, Memphis, Tenn., to Kirk & Blum Mfg. Co., Cincinnati; $4750. Bids Sept. 19.

Unstated tonnage, elevated steel tank, Hoffman Island, New York, to Pittsburgh-Des Moines Steel Co., Pittsburgh, at $4790.

Unstated tonnage, elevated tank, Indian school, Rapid City, S. Dak., to Chicago Bridge & Iron Works, Chicago.

Contracts Pending

7200 tons, cruiser No. 39; bids to be opened by the navy department, Dec.

449 tons, navy, for delivery to Boston, Brooklyn and Philadelphia, on schedule 8878, Oct. 25; Worth Steel Co., Claymont, Del., low on bulk of tonnage, delivered, and f.o.bb. works.

178 tons, navy, for delivery to Boston, Brooklyn and Philadelphia, on schedule 8876; Worth Steel Co., Claymont, Del., low.

14, for construction in private yards.

400 tons, elevated tank, Garden City, Long Island, N. Y.; readvertised bids closed Oct. 27.

374 tons, medium black plates, navy, Mare Island, Calif.; Worth Steel Co., Claymont, Del., and Alan Wood Steel Co., Conshohocken, Pa., low; bids Oct. 25.

140 tons, plates and shapes, lighthouse tender, HEMLOCK; bids Nov. 29, Commissioner of Lighthouses, Washington.

125 tons, suction dredge for Alpha Portland Cement Co., Easton, Pa.

100 tons, or more, three oil barges, United States engineer, Chicago; bids Nov. 16.

100 tons, oil terminal, Rocky Hill, Conn.

Unstated tonnage, two steel hulls, Standard Oil Co. of Louisiana, Baton Rouge, La.

Unstated tonnage, 70-foot steel hull for derrick boat D-1, engineer, Jacksonville, Fla.

Wire Shows Seasonal Recession in October

Wire Prices, Page 37

Chicago—Wire products have experienced the usual October decrease in new business and shipments. Specifications for barbed wire and fencing are less active, although demand for manufacturers' wire is unchanged. Prospects for improved demand for the latter are unfavorable. Automotive industry is expected to show but slight change in demand the next 30 days. Prices are steady at $2 in carloads for wire nails and 2.25c for plain wire.

Worcester, Mass.—Wire demand is about equal to last month, with demand spotty and prices unchanged. Nails show weakness. There is keen competition for specialties. A New Haven wire rope mill is busy, largely on public requirements.

New York—Manufacturers' wire is moving more actively, particularly into Connecticut. Prices are unchanged at 2.20c, Pittsburgh, for wire and $1.95 for nails.

Pittsburgh—Shipments and specifications of wire products leveled off the latter part of October, so the month as a whole equaled September. A shade better volume in bright plain wire and spring wire was offset by a minor decline in demand for nails and some specialty items. Prices are fairly firm, mills quoting $1.95 minimum on nails and 2.20c on plain wire. Imported material still is felt at coastal points.

Memphis, Tenn.—Award of 150 tons of 7/16-inch wire strand to Pidgeon-Thomas Iron Co., Memphis, at $6600, f.o.b. mill, Waukegan, Ill., is announced by the United States engineer here.

Railroads

Pennsylvania Places 12,000 Tons Steel for Car Repair—Lower Rail Price to Help

TRACK MATERIAL PRICES, PAGE 37

Pittsburgh—Pennsylvania railroad has awarded close to 12,000 tons of plates, shapes and bars for its car building program, the Harrisburg, Pa., plate mill receiving 8700 tons. Tonnage to other interests, in all not more than 3000 tons, may be considered disproportionate, but the tonnage was placed on the basis of price. Inquiry for various lots of steel for extensive repairs to 600 hopper coal cars is expected from the Norfolk & Western railroad. Repairs will be made at its Roanoke, Va., shops.

Tie plates have been reduced by Pittsburgh mills to a $35 base, which is in conformity with the market at Chicago. Although the $3 a ton reduction in the price of rails last week forecasts some rail buying, important budgets will not be made up for another month and important buying is not actively pending at present. With the tie plates now 1.75c, spikes continue 2.40c although there is no indication of buying at present in either product.

The Edgar Thomson rail mill may resume operations this week.

New York—Repair of 10,000 steel box cars and 3000 automobile cars over a period of seven to eight months is outlined in an application from the New York Central railroad to the interstate commerce commission for authorization to borrow $2,500,000 from the Reconstruction Finance Corp. In event of improvement in business, it was indicated that the program might be changed to provide for the repair of 7500 steel box cars, 4000 hopper cars and 1000 stock cars. If the improvement in business sufficiently warranted, New York Central would substitute the repairing of 100 locomotives for the work on the 4000 hopper cars. Under the first schedule, work would be done at East Buffalo and Indianapolis shops. The provisional program would place work also at Avis, Pa., and Toledo, O., and also possibly at the West Albany, N. Y., shops.

Pennsylvania railroad is taking bids Nov. 4 on 1000 tons of steel boiler tubes and 800 tons of rough steel tires.

Chicago Great Western railroad is inquiring for 200 steel dump and stock cars. Norfolk & Western railroad will do heavy repairs on 500 hoppers at its Roanoke, Va., shops. General American Car Co. is low on two or three steel box cars for the Hog Island navy yard. Delaware, Lackawanna & Western has placed 4000 tons of 130-pound rails for January delivery.

Philadelphia—Pennsylvania railroad is completing its distribution of approximately 12,000 tons of rolled products. Union Metal Products Co., Chicago, has booked patented ends for 900 cars. Southern Railway has placed a small tonnage of rails. Reading Car Wheel Co., Reading, Pa., has resumed operations after a suspension of several weeks.

Cleveland—Railroads with headquarters in Cleveland are potential buyers of 65,000 to 85,000 tons of rails for 1933. They are beginning to estimate their requirements and probably will place some orders this fall, though immediate action is not anticipated. Current purchasing is limited to routine repair work, but there has been active demand for plates, the local plate mills operating last week and this week mainly on material for car repairs. Sales of car parts have improved.

Chicago—Purchase of 6000 tons of rails for 1933 requirements by the Illinois Central railroad is forecast by L. A. Downs, president. They will be placed before the end of the year, he says, accompanied by tie plates and fastenings. Reduction of steel rails from $43 to $40 per ton has not brought releases and orders up to this time, though it is generally believed considerable tonnage will be placed before Jan. 1, as need is great on the part of roads for rehabilitation. Harry A. Wheeler, president, Railway Business association and the Railroad Equipment Finance Corp., recently pointed out the large pentup needs of railroads, perhaps totaling 1,000,000 tons of rails, in addition to other steel products.

Rail Orders Placed

Delaware, Lackawanna & Western, 4000 tons 130-pound rails, to unstated producer.

Car Orders Pending

Chicago Great Western, 200 steel dump and stock cars; bids asked.

Norfolk & Western, repairs to 600 hopper coal cars.

Structural Shapes

Fewer Awards, and Volume Drops Below Weekly Average, with Large Projects Pending—2600 Tons Placed For Florida Postoffice and 1700 for Western Bridge

STRUCTURAL SHAPE PRICES, PAGE 37

Chicago—Structural inquiry is declining, although a fair volume of business, principally bridge work, remains to be closed. Awarding of 1500 tons for a bridge at Justice, Cook county, Illinois, is expected shortly, while bids close on 2800 tons for two state bridges this week. Pending bridge work in various states in this district totals 12,600 tons.

Boston—Structural lettings have stepped up, led by a 200-ton bridge at Springfield, Mass. Several 500-ton or more inquiries are maturing.

New York—The structural steel outlook is brightened by the addition of several large jobs to the pending list, with others nearing the award stage. New viaduct and bridges in New Jersey, closing Nov. 14, call for 3200 tons, while bids close Nov. 7 for rebuilding the St. George, Staten Island, N. Y., viaduct over the Baltimore & Ohio tracks, taking close to 1000 tons. In addition to the larger jobs, there has been a slight gain in small projects. Fabricated prices are unsettled and plain material is being shaded.

Philadelphia—About 14 new jobs are being figured in this district, their requirements totaling less than 700 tons. Specifications are expected out shortly on the 1000-ton American Philosophical society building. Shapes are 1.70c, nearest mill.

Pittsburgh—Wheeling Structural Steel Co., Wheeling, W. Va., has taken 2660 tons of fabricated steel for the Jacksonville, Fla., postoffice. Several state highway bridges have been awarded. Entry of structural steel for rolling by local mills has been in unchanged volume, with small lots of plain material based on 1.60c, Pittsburgh. Fabricated prices still are weak.

Cleveland—Additional state bridge jobs, making seven in all, for award Nov. 4, increase shape requirements to 1400 tons. Difficulties in selling notes delay the Main street bridge here, estimated to take 6000 to 7000 tons. A state bridge at Niles, O., awarded some months ago to American Bridge Co., has been formally released for work. Small jobs are more numerous. Plain material is 1.60c base, Pittsburgh.

Contracts Placed

2660 tons, postoffice and courthouse, Jacksonville, Fla., to Wheeling Structural Steel Co., Wheeling, W. Va.; Algernon Blair, Montgomery, Ala., contractor.

1700 tons, state bridge, Missouri river, highway 8, McLean and Mercer counties, North Dakota, near Elbowood, to American Bridge Co., Pittsburgh; Industrial Contracting Co., Minneapolis, general contractor.

885 tons, bridges in Dawes, Seward and other counties, Nebraska, to St. Joseph Structural Steel Co., St. Joseph, Mo.

750 tons, highway bridges, Oklahoma, to J. B. Klein Iron Foundry Co., Oklahoma City, Okla.

700 tons, Chrysler Corp. building, World's fair, Chicago, to Duffin Iron Co., Chicago; previously reported as 600 tons to unstated fabricator.

625 tons, Wadsworth Athenium, Morgan Memorial, Hartford, Conn., to Robert Gadd, Hartford; through H. F. Peaslee Inc., Hartford, Conn. Material to be fabricated by Lehigh Structural Steel Co., Allentown, Pa.

300 tons, Maison Blanche building, Lapeyre - Miltenberger Convalescent home, New Orleans, to unstated fabricator; G. F. Favrot, New Orleans, general contractor.

365 tons, state highway bridge, Sayre, Okla., to McClintic-Marshall Corp., Bethlehem, Pa.

275 tons, repairs, Division street bridge, Chicago, to Duffin Iron Co., Chicago.

260 tons, state highway bridge, Shamokin, Pa., to McClintic-Marshall Corp., Bethlehem, Pa.

250 tons, shapes and bars, almshouse, New Orleans, to Virginia Bridge & Iron Co., Roanoke, Va., and Truscon Steel Co., Youngstown, O.; Caldwell Bros., New Orleans, general contractors.

200 tons, Armory street bridge, Springfield, Mass., to Phoenix Bridge Co., Phoenixville, Pa.; J. G. Roy Co., contractor.

200 tons, bridge, Muddy river, near Glendale, Nev., 100 tons of shapes to Virginia Bridge & Iron Co., Roanoke, Va.; 100 tons of steel piling, to Inland Steel Co., Chicago; J. J. Burke, Salt Lake City, Utah, contractor. Colorado Fuel & Iron Co. awarded 25 tons of reinforcing bars.

200 tons, state bridge, Hainsport, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

200 tons, building for Bogalusa Paper Co., Bogalusa, La., to Ingalls Iron Works Co., Birmingham, Ala.

190 tons, highway bridge, Moapa, Nev., to unstated interest.

180 tons, highway bridge, Blossburg, Pa., to unstated interest.

177 tons, state bridge, Lebanon county, Pennsylvania; awarded through H. R. Miller Co., Lebanon, Pa., to Bauman Iron Works, Reading, Pa.

175 tons, state bridge, Tioga county, Pennsylvania; awarded through J. H. Wickersham, Lancaster, Pa., to unnamed fabricator.

175 tons, bridge work, Henry county, Missouri, to St. Joseph Structural Steel Co., St. Joseph, Mo.

160 tons, riding academy, Fort Mead, Sturges, S. Dak., for 7th corps area of United States army, to Gate City Iron Works, Omaha, Nebr.

160 tons, addition to Hazel telephone exchange, Pittsburgh, to McClintic-Marshall Corp., Pittsburgh.

160 tons, building, Deaconess hospital, Boston, to New England Structural Co., Boston; George B. Macomber Co., Boston, contractor.

150 tons, hospital, Dannamora, N. Y., to Kellogg Structural Steel Co., Buffalo; through Shapiro Bros., New York, general contractors.

135 tons, community house, Washington, to Lehigh Structural Steel Co., Allentown, Pa.

130 tons, miscellaneous state bridge work, Pennsylvania, to Bethlehem Fabricators Inc., Bethlehem, Pa.

130 tons, bridge, Greene county, Pennsylvania, to Fort Pitt Bridge Co., Pittsburgh.

125 tons, miscellaneous state bridge work, Pennsylvania, to Morris Wheeler & Co., Philadelphia.

120 tons, highway bridge, East Bridger, Mont., to American Bridge Co., Pittsburgh, through Dakota Concrete Co.

110 tons, steel sheet piling, Panama, to United States Steel Products Co., New York.

110 tons, bridges at various points for department of agriculture, distributed to Pittsburgh-Des Moines Steel Co.; Guibert Steel Co., and Lee C. Moore Co., all of Pittsburgh.

100 tons, piling, highway construction work, Nevada, to Inland Steel Co., Chicago.

100 tons, Science building, Deerfield Academy, Greenfield, Mass., to Haarmann Steel Co., Holyoke, Mass.; J. R. Hampson & Co., Pittsfield, contractor.

100 tons, postoffice, Provincetown, Mass., to Bethlehem Fabricators Inc., Bethlehem, Pa.

Unstated tonnage, state bridge, Maine, to American Bridge Co., Pittsburgh.

Awards Compared

	Tons
Awards, week ended Oct. 29	**11,657**
Awards, week ended Oct. 22	**90,263**
Awards, week ended Oct. 15	**6,712**
Awards, this week in 1931	**23,022**
Av. weekly awards, 1931....	**34,236**
Av. weekly awards, 1932....	**16,624**
Av. weekly awards, Sept.	**10,688**
Awards, to date, 1931.....	**1,615,182**
Awards, to date, 1932	**731,490**

Contracts Pending

5000 tons, for Tifft street crossing, Buffalo; hearing on plans Nov. 1 at Buffalo.

3011 tons, viaduct, route 21, section 1-A, over tracks of Pennsylvania and Lehigh Valley railroads, Newark, N. J.; bids Nov. 14, New Jersey State highway commission, Trenton.

2300 tons postoffice and courthouse, Norfolk, Va.; Consolidatd Engineering Co. Inc., Baltimore, low.

2069 tons, including 904 tons of steel

piling, 685 tons of structural steel, 387 tons of class A steel castings, 47 tons of class B castings, and 46 tons of steel forgings, lock, dam 5, Mississippi river, United States engineer, St. Paul; bids soon.

1600 tons, postoffice, Albany, N. Y.; Kenney Bros. Inc., New York, awarded general contract.

1500 tons, bridge, Justice, Cook county, Illinois; American Bridge Co., Pittsburgh, low.

1100 tons, viaduct, 205th street, New York; Serg-Romm Co., low.

1000 tons, viaduct, over Baltimore & Ohio tracks, St. George, Staten Island, N. Y.; bids Nov. 7.

800 tons, highway bridges, Illinois; Vincennes Bridge Co., Vincennes, Ind., low on bulk of tonnage.

750 tons, postoffice, Jackson, Miss.; Supreme Construction Co., New York, general contractor.

653 tons, including 275 tons of castings, mainly class A steel, lock at dam 3, Tennessee river; bids Nov. 15, United States engineer, Chattanooga, Tenn. Also, 40 tons of bars and smaller miscellaneous requirements, including wrought pipe.

550 tons, postoffice, Reno, Nev.; MacDonald Engineering Co., Chicago, general contractor.

550 tons, Municipal building, Nashua, N. H.

500 tons, bridge, Maine Central railroad, Falmouth, Me.; bids soon.

500 tons, state bridges, Beach street, Revere, Mass.; bids Nov. 8.

475 tons, Municipal building, Cambridge, Mass.

450 tons, shapes and bars, postoffice, Columbus, Ga.; bids Nov. 21.

450 tons, shapes and bars, postoffice, New London, Conn.; bids Nov. 22.

430 tons, postoffice, Springfield, O.; A. W. Kutsche & Co., Detroit, low.

400 tons, shapes and bars, Oak Park, Ill., postoffice; Largura Construction Co., Gary, Ind., low on general contract.

400 tons, repair and service station, Long Island City, N. Y.

300 tons, hospital, University of Maryland, Baltimore; bids asked.

250 tons, barracks, Fort Bragg, N. C. and Post Field, Okla.; bids Nov. 15.

250 tons, navy, for delivery to Boston, Brooklyn and Philadelphia; Bethlehem Steel Corp. low on bulk of tonnage, delivered; Carnegie Steel Co. low on bulk, f.o.b. works.

200 tons, school buildings, Exeter, N. H.

168 tons, state bridges, Cyprus Creek, Texas; O. Speer, Alvord, Tex., contractor. Also 60 tons of reinforcing bars required.

166 tons, bridge, Paulin's Kill, route 8, section 4, Warren county, New Jersey; bids Nov. 14, state highway commission, Trenton. Also 37 tons of reinforcing bars required.

150 tons, shapes and bars, postoffice, Bryn Mawr, Pa.; bids Nov. 25.

150 tons, dormitory, federal reformatory, El Reno, Okla.; W. S. Bellows Construction Co., Oklahoma City, low.

110 tons, postoffice, Pampa, Tex.; bids Nov. 28.

Unstated tonnage, highway bridge, Kentucky; Mt. Vernon Bridge Co., Mt. Vernon, O., low, opening of Oct. 26.

Unstated tonnage, hospital, Camp Holabird, Baltimore; bids, Oct. 31.

Unstated tonnage, Federal hospital, Ft. Howard, Maryland; bids Oct. 31.

United Kingdom in August imported from the United States sheet, plate and metalworking machines valued at 195,579.

Concrete Bars

Work Limited Almost Exclusively to Public Projects —Substantial Orders Placed —Market More Active in Some Districts — Prices Show Easier Trend

REINFORCING BAR PRICES, PAGE 37

Chicago—More than 2000 tons of bars for Illinois road, bridge and culvert work is ready to be placed, although, since the bulk is for highway construction, only a small portion is expected to be ordered out before spring. Inquiries generally are less numerous and involve smaller lots. Quoting of prices on bulk lots has had a depressing effect upon quotations which now are no higher than 1.60c for billet bars, and 1.30c for rail steel.

Boston—The bulk of reserve needs for state highways have been placed. Prices are unsettled, rail steel bars having sold as low as 1.60c, delivered to the job. A Pittsburgh mill took about 150 tons of mesh for Connecticut highways.

New York—Approximately 600 tons of reinforcing material is active for bridge work in New Jersey, and 1000 tons for hospitals in New York. Billet bar prices are inclined to weakness, influenced by rail steel and imported bars.

Philadelphia—Little business is in sight. The 1500 tons of bars and mesh for the Thirtieth street post office still are pending. Billet bars in cut lengths continue easy at 1.55c, Pittsburgh, and rail steel bars, at 1.35c, eastern mill.

Pittsburgh—Base of 1.60c on new billet steel is fairly general on orders of approximately 50 tons and less, but the large orders bring out concessions. This was noted especially on a 3000-ton bar order placed at Louisville, Ky., a week ago for all-water delivery. Another Pennsylvania state letting goes in Nov. 10. Mill bookings of reinforcing steel were lighter in October than September.

Cleveland—Bids will be taken by the state about Nov. 18 on the Brook Park bridge, Cuyahoga county, Cleveland, Ohio, requiring approximately 1000 tons of concrete bars. Bids also go in to the state highway commission Nov. 4 on nine bridges, taking 716 tons. Except for public work the market is dull.

Awards Compared

	Tons
Awards, week ended Oct. 29	**4,317**
***Awards, week ended Oct. 22**	**9,637**
Awards, week ended Oct. 15	**2.633**
Awards, this week, 1931	**4,177**
Av. weekly awards, 1931	**6,808**
Av. weekly awards, 1932	**4,269**
Av. weekly awards, Sept.	**4,523**
Awards, to date, 1931.....	**314,970**
Awards, to date, 1932	**187,864**

***Revised**

Contracts Placed

896 tons, state highway work in Los Angeles county, California, to unnamed interests.

665 tons, postoffice, Cincinnati, to Pollak Steel Co., Cincinnati; through Consolidated Engineering Co., Baltimore, general contractors. In Oct. 15 issue noted as placed with contractor.

500 tons, mesh, highway, Eastern State Parkway, Putnam county, N. Y., to Wheeling Steel Corp., Wheeling, W. Va.

410 tons, hospital, Oneonta, N. Y., to Concrete Steel Co.; through LaSala, Mason Corp., New York.

350 tons, state bridge, Missouri river, highway 8, McLean and Mercer counties, North Dakota, near Elbowood, to Kalman Steel Corp., Bethlehem, Pa.; Industrial Contracting Co., Minneapolis, contractor.

335 tons, postoffice, Jacksonville, Fla., to Connors Steel Co., Birmingham, Ala.; Algernon Blair, Montgomery, Ala., general contractor.

303 tons, San Gabriel dam No. 2, Los Angeles county, California, to Truscon Steel Co., Los Angeles.

200 tons, aquatic park for San Francisco, to Soule Steel Co., San Francisco.

185 tons, work at Shark river, Belmar-Avon, N. J., to Joseph T. Ryerson & Son Inc., New York; through S. S. Thompson & Co., Red Bank, N. J.

176 tons, state bridge substructures and approaches, Wellesley, Mass., to Truscon Steel Co., Youngstown, O.; Simpson Bros. Corp., Boston, contractor.

165 tons, mesh, highway, Middletown-Berlin, Conn., section, to American Steel & Wire Co., Pittsburgh; D. Arrigoni, Middletown, Conn., general contractor.

135 tons, four state bridges, Jackson county, Oregon, to unnamed interests; Curtis & Gordon, Portland, Oreg., general contractors.

122 tons, highway work in Ventura county, California, for bureau of public roads, to unnamed interest.

120 tons, bridge, Pine Bush-Ellenville, N. Y., to Kalman Steel Corp., Bethlehem, Pa.; through De Luca Bros., Harrison, N. Y.

110 tons, school, Pine Plains, N. Y., to Truscon Steel Co., Youngstown, O.

110 tons, school, Hamilton, O., to Kalman Steel Corp., Bethlehem, Pa.,

through H. R. Blagg Co., general contractors, Dayton, O.

100 tons, mesh, highway, Middlebury, Conn., to American Steel & Wire Co., New York; through Clark-Barrone Co., New Haven, Conn.

100 tons, three bridges, Rhode Island, to Kalman Steel Corp., Bethlehem, Pa.; about 125 tons additional to be bought.

Contracts Pending

1000 tons, Brook Park bridge, Cuyahoga county, (Cleveland) Ohio; bids by state highway commission, Columbus, O., about Nov. 18.

716 tons, nine state bridges; bids Nov. 4, state highway commission, Columbus, O.

481 tons, viaduct, route 21, section 1-A, over Pennsylvania railroad and Lehigh valley tracks and yards, Newark, N. J.; bids Nov. 14, New Jersey state higway commission, Trenton, N. J.

364 tons, lock, dam 5, Mississippi river; United States engineer, St. Paul; bids soon.

200 tons, postoffice, Ada, Okla.; Rogers & Leventhal Inc., Chattanooga, Tenn., contractor.

165 tons, water and sewer system, hospital, Wingdale, N. Y.; bids Nov. 3.

150 tons, state highway F.A.P., E-81, North Kingston, R. I.; bids in.

145 tons, state highway, Nassau and Duval counties, Florida; bids Nov. 1.

135 tons, nurses' home, veterans hospital, Bronx, N. Y.; bids in.

120 tons, mesh, highway, route S-49, section 4, contract B, Green creek to Dias creek road, Cape May county, New Jersey; bids Nov. 14, at Trenton.

100 tons, viaduct, 205th street, Bronx, (New York); bids in.

Bolt, Nut Volume Shows Steady, Moderate Gain

Bolts, Nuts, Rivets Prices, Page 37

Pittsburgh — Specifications for bolts, nuts and rivets in October were only moderately ahead of September. Specifications from railroads are quiet compared with the first half of October. Prices of 75 off for bolts and nuts and 2.25c on large rivets appear to be holding.

Cleveland—Railroad buying featured the market for nuts, bolts and rivets during the week. Several roads placed good orders. October tonnage is larger than that of September. Few releases have developed from automotive builders. Prices are steady.

Chicago—Bolt, nut and rivet shipments exceed the September rate, while new business compares favorably also with activity a month ago. This has been occasioned largely by an increase during the past two weeks, early October having been quiet. Most orders are for prompt shipment and fairly well diversified, demand from the agricultural implement industry being slightly heavier although not general. Railroads continue quiet buyers but jobbers are moving their stocks at a slightly better rate. Prices are unchanged and fairly steady.

New York—The Pennsylvania railroad is distributing 300 to 400 tons of rivets for its car building programs.

Magnitogorsk Quickens Gait

USSR chamber of commerce, Moscow, states that on Aug. 24 the 183 coke ovens at Magnitogorsk produced 2068 tons of coke, while 930 tons of pig iron were tapped from the blast furnace and 9174 tons of ore were mined.

Pipe

Los Angeles Buying 7462 Tons of Cast—Municipal Projects Not Being Canceled

PIPE PRICES, PAGE 51

Pittsburgh—Over 13,000 feet of various sizes of steel pipe will be required for the London, W. Va., roller dam and abutment, for which the Dravo Contracting Co., Pittsburgh, is low bidder. Standard pipe led a mild recovery in the tubular products business in October. Mechanical tubing was in better demand than during September.

Boston—Activity in cast pipe is light. Prices are holding well. Boston central heating extensions result in some shipments on old orders and also some new orders from time to time.

New York — Cast iron pipe requirements are largely in small lots for highway and state hospitals, the largest inquiry covering about 1000 tons for an upstate water district. Prices are unchanged.

Approximately 1500 tons of ¾-inch steel pipe may be bought by the board of transportation for work at Jamaica, Long Island, N. Y.

Cleveland—Demand for steel pipe here is limited to small shipments to jobbers, building requirements being light. Covington, Ky., will be in the market shortly for 510 tons of cast pipe, Reconstruction Finance Corp. agreeing to purchase $75,000 worth of bonds.

Chicago—Cast pipe producers have but few projects involving more than carload lots on which to figure. A fairly large number of jobs awaiting federal aid are accumulating. Wilmette, Ill., will take bids shortly on its proposed waterworks, requiring more than 700 tons.

Birmingham, Ala. — Awards to southern pipemakers continue unsatisfactory, though recent surveys indicate there is no change in municipal programs requiring substantial tonnages.

Cast Pipe Placed

1200 tons, 4 to 8-inch class B for Suburban Water Co., San Francisco, for the installation in Santa Clara valley, to C. G. Claussen & Co., San Francisco.

200 tons, 2-inch for Los Angeles, to Pacific States Cast Iron Pipe Co., Provo, Utah.

Cast Pipe Pending

7462 tons, 6 to 12-inch for Los Angeles, United States Pipe & Foundry Co., Birmingham, Ala., low on 5000 tons.

510 tons, Covington, Ky. Reconstruction Finance Corp. will purchase $75,000 worth of bonds, financing project.

200 tons, 8 and 12-inch, Beaumont, Tex.

105 tons, 4 and 6-inch, Bay St. Louis, Miss.; bids Nov. 7.

Steel Pipe Placed

3500 tons, 42-inch, Ft. Wayne, Ind., to Alco Products Co., Dunkirk, N. Y.; reported in Oct. 24 issue to unstated interest.

Unstated tonnage, 200 lengths 20-inch shore pipe, United States engineer, New Orleans, to Wyatt Metal & Boiler Works, Houston, Tex., at $22 per length delivered.

Unstated tonnage, pontoon pipe for dredge, engineer, Wilmington, N. C., to R. D. Cole Mfg. Co., Newman, Ga., at $2050, delivered.

Unstated tonnage, suction pipes, engineer, Nw York, bids of Sept. 15, to General Steel Castings Corp., Eddystone, Pa.

Unstated tonnage, 1100 steel boiler tubes, navy, Mare Island, Calif., to National Tube Co., Pittsburgh; $1.05 each, delivered.

Unstated tonnage, 100,000 feet ½-inch rigid steel conduit, galvanized or cadmium plated, Panama, to Laclede Tube Co., St. Louis; $4467, delivered.

Steel Pipe Pending

Unstated tonnage, 13,000 feet of various sizes for roller dam and abutment, London, W. Va.; Dravo Contracting Co., Neville Island, Pittsburgh, low on general contract at $1,559,000.

Unstated tonnage, 100 steel pipe nipples, 20-inch L. D., United States engineer, St. Louis; Treadwell Construction Co., Midland, Pa., low, $3400.

Strip

Hot-Rolled Needs Bring Larger Orders — Cold-Rolled Buying In Small Volume

STRIP PRICES, PAGE 37

Pittsburgh — Hot-rolled strip orders gained in October. Two producers placed mills in operation recently on rollings which have since been continuously engaged on current orders. Cold-rolled strip is making a relatively light showing, with 2.00c most generally quoted. Understood concessions prevail beneath the latter price. Hot-rolled strip is 1.45c, Pittsburgh.

New York — Improved buying of narrow cold strip, particularly by manufacturers of elecrical products, has appeared. Cold-rolled is steady at 2.00c, Pittsburgh, and hot-rolled at 1.45c, Pittsburgh.

Philadelphia — Strip buying is light, with hot-rolled 1.45c, Pittsburgh, and cold-rolled 2.00c.

Cleveland—Stamping plants working on automotive accounts are taking more strip, which has lifted the general volume of business for some producers. Building hardware requirements are not active to any appreciable extent. Hot-rolled sheets continue 1.45c to 1.50c, base, Pittsburgh; and cold-rolled, 1.90c to 2.00c, base, Cleveland.

Chicago—While strip mills are maintaining recent production of 12 to 15 per cent, incoming business shows no additional improvement. Orders for small lots are fairly numerous, while requirements of large tonnage buyers are slow to expand. Interest in future requirements generally is lacking. Prices are 1.55c for hot, with cold usually 2.00c, Pittsburgh-Cleveland.

Steel Rate Still 19.5, but More Uncertainty Manifest

Pittsburgh — Steel ingot production still is 17 per cent. The leading mill ran last week at under this figure and operations of independents sustain this rate. Several open hearths will be lighted this week to produce billets for the Edgar Thomson rail mill, which may boost the district's rate to 18 per cent. Nine out of 53 blast furnaces owned by steel producers are in blast, four for Carnegie Steel Co., three for Jones & Laughlin Steel Corp., and one each for Pittsburgh Crucible Steel Co. and Pittsburgh Steel Co.

Philadelphia — Eastern steel making operations again are unchanged at around 14 per cent. Railroad buying to date has affected operations little in the East. No material change is expected until after election.

Buffalo—After being at 19 per cent for ten days, steelworks operations here are off to 16 per cent, expected to be the rate for this week.

Operations, week ended Oct. 29	**19.5**
Operations, week ended Oct. 22	**19.5**
Operations, week ended Oct. 15	**19.5**
Operations, one year ago	**28**
High for 1932, Feb. 6	**28.5**
Low for 1932—July 9	**12**

Bethlehem has taken off one open-hearth furnace, leaving three on at Lackawanna. Wickwire continues to run one furnace. For the third week Republic has two furnaces on.

Youngstown, O.—Steel plant operations here last week averaged 19 per cent, and were expected to advance to around 20 per cent this week. An increase of finishing mill activity indicates moderately higher melting schedules shortly, although no sharp gain is expected until after Nov. 8.

Cleveland—Steel ingot production here stepped up from 25 to 26 per cent, the latter rate prevailing all last week. It probably will be increased to 29 per cent this week, as Otis Steel Co. is scheduled to light a third open hearth. Corrigan, McKinney Steel Co. has four active and American Steel & Wire Co. three. Finishing capacity also is more engaged.

Chicago—Mills are holding most of recent production gains, ingot output the past week continuing around 18 per cent, with eight of 36 steelworks blast furnace stacks still active. Ingot production is spotty, the rate at some plants being as high as 25 per cent. No additional improvement of consequence is in immediate prospect, with a moderate decline not unlikely. Finishing mill schedules are steady.

Birmingham, Ala. — Steelmaking operations average 23 to 25 per cent, little changed. It is believed that the recent cut in the price of rails will lift operations here.

Warehouse Trade Shows Small Change in Volume

Warehouse Prices, Page 51

Pittsburgh—Bars and structurals led warehouse improvement in October demand as against September. Bookings generally were better for the third straight month. Quotations are unchanged.

Boston—Warehouse business is dull, some jobbers taking less business than in September. Orders are small. Prices, except for sheets, are steady. Some downward adjustments have been made on sheets.

New York—While orders are moderately numerous, few call for attractive tonnage and warehouse volume in October was about that of September, the few intervals of improvement failing to hold. Business is well diversified and prices only partially maintained due to foreign competition and the uncertain attitude of some mills, notably on sheets.

Detroit—Warehouse business in iron and steel continues at about the September level. An occasional requirement is prompted by the start on automobile models for 1933. Prices are steady.

Cincinnati — Warehouse tonnage for October was slightly better than in September. Lack of inquiries which might develop into November business was a disappointing factor during the past week.

Chicago—Sales during the past week showed little disposition to decline as is usual for the end of the month and October business compared favorably with that of September.

St. Louis — Warehouse business continues satisfactory chiefly from miscellaneous users. Seasonal improvement is developing in certain manufacturing lines. Goods for distribution in the rural sections continue quiet.

Tin Plate Output Gains

Output of tin and terne plate in the United States in September was 77,000 tons, an increase of 2000 tons over August, but 20,000 tons below September, 1931.

German output of tin plate in August, the latest month for which statistics are available, was 8605 tons, compared with 12,233 tons in July. No British statistics are available since June.

RAW MATERIAL PRICES

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$15.50
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Philadelphia, delivered	13.51 to 13.76
Virginia furnace	17.25
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	**18.90**
Buff., all-rail, Newark	**17.28**
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	**19.40**
Buffalo, all-rail, Newark	**17.78**
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	17.75
Eastern, del. Phila.	14.01 to 14.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	14.51 to 14.76

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.00
Pittsburgh, delivered	14.63 to 15.13
Eastern Penn., del.	13.50
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19; 15—$21 to $23.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

BEEHIVE OVENS

Connellsville furnace	$1.90 to 2.10
Connellsville foundry	2.75 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

BY-PRODUCT FOUNDRY

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens, outside del.	7.00
Chicago, del.	7.75
New England, del.	10.00
St. Louis, del.	7.75
Birmingham, ovens	4.50
Indianapolis, del.	7.75
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania New Jersey furnaces

(Nominal)

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

(Nominal)

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.90 to 10.25
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

(Nominal)

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50%	22 cents
Brazilian, 46-48%	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet and East Chicago	**47.00**
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

Burned, 9 x 4½ x 2½	$61.50
Unburned, 9 x 4½ x 2½	52.00

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bassemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	26.00 to 28.00
Forging, Chicago	31.00 to 33.00
Forging, Pittsburgh	31.00
Forging, Philadelphia	35.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	25.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(The above for spot carlots. Contract price $5 a ton less).	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	50.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $2.75 unitage	65.00
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	0.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, f.o.b. Ill., Ky., net ton car loads	$12.00
Washed gravel, import duty paid tide, gross ton	18.50

Pig Iron

Producers Encouraged by Increasing Consumption — New Sales at Slower Rate

PIG IRON PRICES, PAGE 44

Pittsburgh — Orders for pig iron are few and far between, with contract customers releasing only small amounts. A slight pickup is noted in activity at some of the radiator producers' plants. Complete details are now becoming available on the recent order of the Allegheny Steel Co. for basic iron. This was divided among four producers; besides the Wheeling Steel Corp., the Weirton Steel Co., Davison Coke & Iron Co., and Jones & Laughlin Steel Corp., took part of this order. All suppliers bid on a water-delivered basis. There have been no recent sales to test silvery or gray forge prices, and foundry, bessemer and malleable irons are nominal at $15, Pittsburgh district furnace.

Boston—Price pressure from imported pig iron threatens or practically prevents profitable competition by domestic producers. More foreign iron is in at Providence and Bridgeport, 1000 tons of Indian at the latter port. Indian iron also is offered lower, under $15, dock, while Dutch iron has been sold at around $13, dock. To further weaken the price structure, Japanese iron has been offered even lower, but with no sales apparent in this district as yet. The New England producer holds to its minimum of $16, furnace. Buffalo iron is available at around $17.50, delivered from Beacon, Mass., where stocks are fairly large. Eastern Pennsylvania iron at some southern New England points is $16.50, delivered.

New York—Pig iron sellers see little activity until after election and current buying consists of small lots for immediate needs. Eastern Pennsylvania foundry pig iron is holding at about $13, furnace; Buffalo foundry iron at $14, furnace.

Philadelphia—Stove foundries are operating at a higher point than others, and are buying moderate tonnages, in some instances covering first quarter. Purchase of 6000 tons of basic iron by an eastern producer is reported, but unconfirmed. Manchurian offerings at around $11.75, duty paid, local port, are having a depressing effect on prices, but to date no important purchases of this iron have been recorded. A Swedeland, Pa., furnace is expected to be blown in the first half of November.

Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., has been awarded 197 tons of foundry iron for the navy, Norfolk, Va., at $16.75 per ton, delivered.

Buffalo—Some iron still is to be shipped to eastern points by barge canal, indicating seaboard stocks have been reduced faster than anticipated. More interest is noted there in the first quarter. Buffalo furnaces, however, are refusing to compete with low foreign offerings. The month's shipments were considerably larger than for September, but new buying has subsided.

Cleveland—Underlying features of the pig iron market continue encouraging. More small foundries are getting started, and demand is becoming more diversified. One Cleveland producer's shipment this month are double those of September; another's 45 per cent higher. A lake furnace interest's shipments are 65 per cent better. Sales volume is fairly steady, with 4000 tons booked by all Cleveland furnace companies in the week. Prices are unchanged.

St. Louis—Stove and heating apparatus manufacturers continue to lead in demand for pig iron, and their outlook for the remainder of the year is promising. The current market is quiet, though shipments make a favorable showing.

Cincinnati—Sales here have receded, some of the hesitancy being attributed to election influences. The volume for the week was less than 1000 tons.

Birmingham, Ala.—With five blast furnaces in operation, production now exceeds the volume of new business. New orders are small.

Toronto, Ont.—Pig iron sales are slightly above average for the year.

Ferroalloys Improve

Ferroalloy Prices, Page 44

Ferromanganese specifications in October in eastern districts were larger than those of September, but spiegeleisen lagged. At Chicago, shipments of both ferromanganese and spiegeleisen increased, for the second consecutive month. Two tows of flourspar moved into steel plants in the Pittsburgh district recently by way of Mississippi routing. Ferromanganese is steady at $68, duty paid; and 19 to 21 per cent spiegeleisen, $25, furnace.

Superior Charcoal Iron Co., Grand Rapids, Mich., reports that shipments in October were the largest for 1932 to date, and it is hopeful for further improvement in November.

Coke

Shipments Continue at Higher Level—Southern Coke Still Going to Canadian Markets

COKE PRICES, PAGE 44

Pittsburgh—Coke shipments fell off last week due to warmer weather in this district, although some foundries are more active and are buying a little more by-product coke. Beehive furnace coke holds at $1.90 to $2.10, although distress offerings still are made as low as $1.75. Premium brands of foundry coke bring $4.25, with other grades $2.75.

New York — Moderate improvement in metallurgical coke specifications is noted, due principally to releases by manufacturers of heating units, now in seasonal production.

Philadelphia—Despite the fact large eastern pipe foundries specified lightly this month, metallurgical coke shipments in this district improved materially. By-product foundry coke is unchanged at $8.50, Philadelphia.

Cincinnati — October shipments of by-product foundry coke were considerably better than those in September. The decided upturn in demand noted earlier in the month, however, has tapered off.

Chicago—Shipments of by-product foundry coke and domestic heating coke continue to improve. The increase in foundry requirements has been moderate, but consistent. Foundry coke continues $7, ovens, for outside delivery.

St. Louis — Shipments are well supported, the movement to the South and Southwest improving. First evidences are appearing that melters are beginning to stock for the winter.

Birmingham, Ala.—More than a third of the by-product coke ovens in this district are in operation, and shipments equal production. Some coke still is being moved into Canada, with no indication yet that the new tariff has had an adverse effect.

Scrap + Baling = $$$

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HYDRAULIC STRAIGHTENERS

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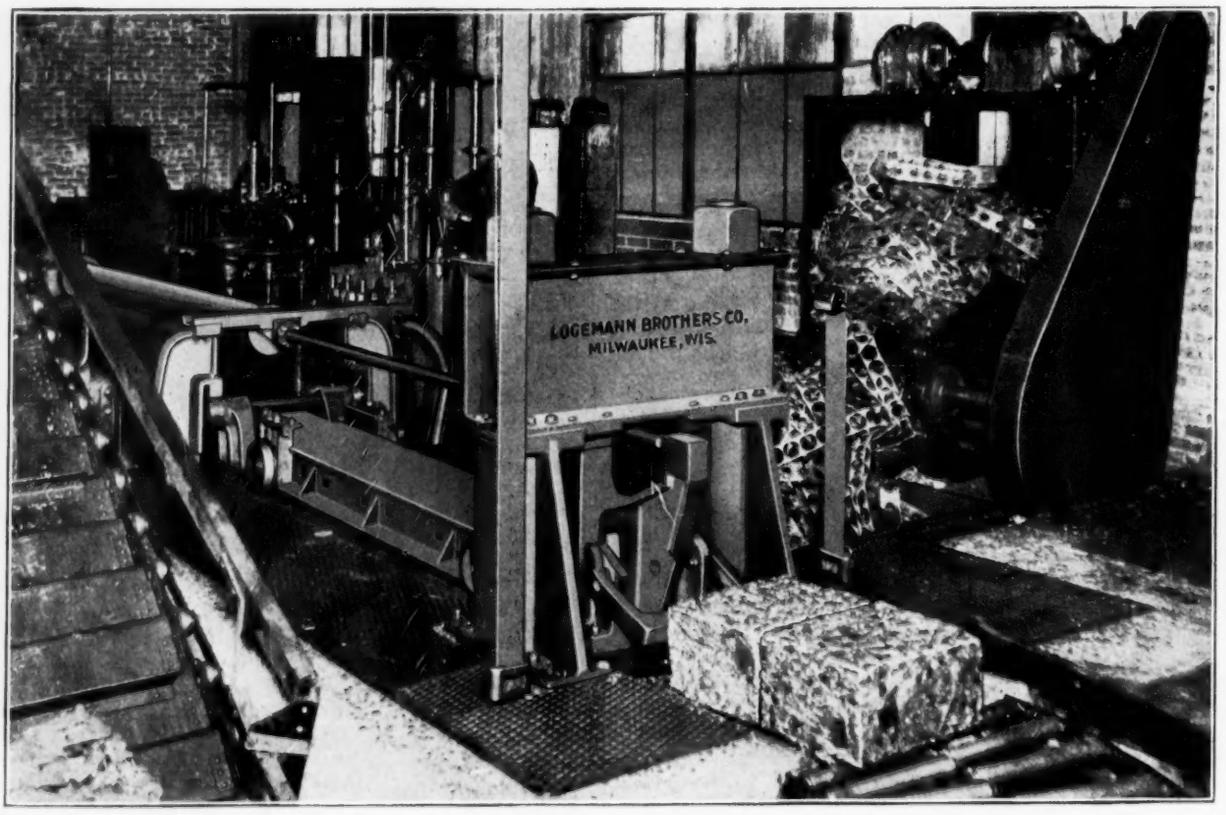
Baling practically eliminates corrosion - - saves much heat in remelting - - permits easy loading of scrap cars to capacity.

The installation below is in a plant making automotive electrical equipment. Scrap comes to the baling room over the horizontal conveyor at the right, is caught by the hopper, while press is finishing a bundle, then automatically charged into press. Press cover shoves the finished bundles to the rollers carrying them to the inclined apron - conveyor at the left, this discharges directly into gondola-car outside.

Our Engineering Department, with years of experience on installations of all kinds, is at the service of interested scrap - producers. Write us.



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Scrap

Dearth of Buying Takes Support From Market and Some Prices Decline—Melt Shows No Gain

Chicago—One independent mill has placed a small tonnage of heavy melting steel at $6, unchanged from the price paid on the previous purchase. Activity generally is quiet and prices are weaker in tone as a result of dullness in consumer buying. Prices are largely nominal but continue at recent levels. Santa Fe railroad is offering 6000 tons, including 1000 of heavy melting steel, the first regular list issued in several months. Small scrap consumers are inactive, although shipments against old orders remain fairly

Boston—Buying of steel and iron scrap is dull and unsettled. Foundry melt shows some increase. Worcester still pays $5, delivered, for No. 1 melting steel, but some dealers will not pay over $3 to $3.25 for ship-

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.50 to 7.00
Boston, dealers	3.00 to 3.25
Buffalo, No. 1	7.50 to 8.00
Buffalo, No. 2	6.25 to 6.75
Chicago	5.75 to 6.00
Cleve., No. 1	7.00 to 7.50
Cleve., No. 2	6.00 to 6.50
Det., No. 1 deal.	5.75 to 6.25
Det., No. 2 deal.	4.50 to 5.00
E. Pa. del. mill	7.00 to 7.50
E. Pa., No. 2 del.	5.50 to 6.00
N. Y. deal. R. R.	4.50 to 4.75
N. Y. deal, No. 2	3.50
N. Y. deal. yd.	2.50 to 3.00
Pitts. No. 1	9.00 to 9.50
St. L. No. 1 sel.	6.00 to 6.50
Federal, Ill.	5.50 to 6.00
Granite City, Ill.	5.00 to 5.50
Valleys, No. 1	9.00 to 9.50

COMPRESSED SHEETS

Buffalo, dealers	6.25 to 6.75
Chi. (Factory)	4.25 to 4.75
Cleveland	6.50 to 7.00
Detroit, dealers	5.50 to 6.00
E. Pa. new mat.	5.00 to 5.50
Pittsburgh	8.50 to 9.00
Valleys	8.50 to 9.00

BUNDLED SHEETS

Buffalo	4.25 to 4.75
Cinci., del.	4.25 to 4.75
Cleveland	4.50 to 5.00
Eastern, Pa.	5.00
Pittsburgh	7.50 to 8.00
St. Louis	1.50 to 2.00

SHEET CLIPPINGS LOOSE

Chicago	2.00 to 2.50
Cincinnati	2.00 to 2.50
Detroit, dealers	2.00 to 2.50
St. Louis	1.50 to 2.00

STEEL RAILS SHORT

Birmingham	7.50 to 8.50
Boston, dealers	2.75 to 3.00
Buffalo	9.50 to 10.00
Chicago (3 ft.)	8.00 to 8.50
Chicago (2 ft.)	8.50 to 9.00
Cinci., del.	9.00 to 9.50
Detroit, deal.	8.00 to 8.50
Pitts. (open-hearth, 3 ft. and less)	10.00 to 10.50
St. Louis	7.50 to 8.00

STOVE PLATE

Birmingham	5.50 to 6.00
Boston, dealers	2.50 to 3.00
Buffalo	7.75 to 8.00
Chicago, net	5.75 to 6.25
Cinci., deal. net	3.50 to 4.00
Det., net deal.	3.00 to 3.50
Eastern Pa.	6.00 to 6.50
N. Y., deal. mill	2.50 to 3.00
St. Louis	5.50 to 6.00

COUPLERS, SPRINGS

Buffalo	9.00 to 9.50
Chicago	6.50 to 7.00
Eastern Pa.	9.00 to 9.50
Pittsburgh	9.25 to 9.75
St. Louis	6.00 to 6.50

ANGLE BARS—STEEL

Chicago	7.00 to 7.50
St. Louis	6.00 to 6.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to 9.50
Cleveland bil. and bloom crops	10.00 to 11.00
Eastern Pa.	9.00 to 9.50
Pittsburgh billet bloom crops	10.50 to 11.00
Pitts., sheet bar crops	10.50 to 11.00

FROGS, SWITCHES

Chicago	6.00 to 6.50
St. Louis	6.00 to 6.50

SHOVELING STEEL

Chicago	5.75 to 6.00
Cleveland	5.75 to 6.00
St. Louis	5.00 to 5.50

RAILROAD WROUGHT

Birmingham	4.50 to 5.50
Boston, dealers	1.00 to 1.50
Buffalo, No. 1	4.50 to 5.00
Buffalo, No. 2	7.00 to 7.50
Cinci., No. 2	5.75 to 6.25
Chi., No. 1, net	5.00 to 5.50
Chicago, No. 2	5.75 to 6.00
Eastern Pa.	7.00 to 7.50
N. Y., No. 1, deal.	2.50 to 3.00
Pitts., No. 2	9.00 to 9.50
St. Louis, No. 1	3.50 to 4.00
St. Louis, No. 2	5.00 to 5.50

SPECIFICATION PIPE

Boston	3.00 to 4.00
Eastern Pa.	7.00 to 7.50
N. Y., deal	2.00 to 2.25

BUSHELING

Buffalo, No. 1	6.25 to 6.75
Chicago, No. 1	4.00 to 4.50
Cinn., No. 1 dl.	4.00 to 4.50
Cinn., No. 2	2.50 to 3.00
Cleve., No. 2	3.00 to 3.50
Det., No. 1 new deal	4.75 to 5.25
St. L., No. 1	3.00 to 3.50
Val. new No. 1	8.25 to 9.75

MACHINE TURNINGS

Birmingham	3.00 to 4.00
Boston, dealers	0.75 to 1.00
Buffalo	3.75 to 4.25
Chicago	3.00 to 3.50
Cin., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit	3.00 to 3.50
Eastern Pa.	3.50 to 4.00
N. Y., deal	1.35 to 1.50
Pittsburgh	5.75 to 6.25
St. Louis	1.50 to 2.00
Valleys	6.75 to 7.25

BORINGS AND TURNINGS

For Blast Furnace Use

Boston, dealers	.75 to .90
Buffalo	3.75 to 4.25
Cinn., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	3.50 to 4.00
Eastern Pa.	3.50 to 3.75
N. Y., deal	1.35 to 1.50
Pittsburgh	6.00 to 6.50

CAST IRON BORINGS

Birming., chem.	12.00 to 13.00
Birming., plain	3.00 to 4.00
Boston, chem.	5.50 to 6.00
Boston, dealers	1.00 to 1.25
Buffalo	4.25 to 4.50
Chicago	4.00 to 4.50
Cinn., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	3.50 to 4.00
Eastern Pa.	3.50 to 3.75
E. Pa., chem.	8.00 to 10.50
N. Y., deal	1.00 to 1.50
Pittsburgh	6.00 to 6.50
St. Louis	2.75 to 3.25

PIPE AND FLUES

Cinn., deal.	3.25 to 3.50

RAILROAD GRATE BARS

Buffalo	4.00 to 4.50
Chicago, net	5.00 to 5.50
Cincinnati	4.00 to 4.50
Eastern Pa.	5.50 to 6.00
N. Y., deal.	3.50 to 4.00
St. Louis	4.50 to 5.00

FORGE FLASHINGS

Boston, dealers	2.00 to 2.50
Buffalo	5.50 to 6.00
Cleve. ov. 10 in.	6.00 to 6.50
Detroit	4.00 to 4.50

FORGE SCRAP

Boston, dealers	1.75 to 2.00
Chicago	7.00 to 7.50
Eastern Pa., del.	5.00 to 5.50

ARCH BARS, TRANSOMS

Chicago, net	5.00 to 5.50
St. Louis	5.00 to 5.50

AXLE TURNINGS

Boston, deal	5.50 to 6.00
Buffalo	6.50 to 7.00
Chi., elec. fce.	4.50 to 5.00
Cleveland	5.50 to 6.00
Eastern Pa., del.	7.00
Pittsburgh, O. H.	7.50 to 8.00
St. Louis	3.50 to 4.00

STEEL CAR AXLES

Birmingham	9.00 to 9.50
Boston, ship. pt.	6.00 to 6.50
Buffalo	10.00 to 10.50
Chicago, net	8.50 to 9.00
Eastern Pa.	14.50
St. Louis	9.00 to 9.50

SHAFTING

Boston, ship. pt.	6.50 to 7.00
N. Y., deal.	6.50 to 7.00
St. Louis	7.50 to 8.00
E. Penna.	11.00 to 12.00

CAR WHEELS

Birming., iron	7.00 to 7.50
Boston, iron deal.	3.50 to 4.00
Buffalo, iron	7.00 to 8.00
Buffalo, steel	8.50 to 9.00
Chicago, iron	7.00 to 7.50
Chi., rolled steel	6.50 to 7.00
Cincinnati iron	6.25 to 6.75
E. Pa. steel	9.00 to 10.00
E. Pa. iron	9.00 to 9.50
Pitts., iron	8.50 to 9.00
Pitts., steel	9.00 to 9.50
St. Louis, iron	5.00 to 5.50
St. Louis, steel	7.00 to 7.50

NO. 1 CAST SCRAP

Birmingham	7.00 to 7.50
Buffalo (Mach.)	10.00 to 10.25
Buffalo, cupola	9.00 to 9.50
Boston, textile	7.00 to 7.50
Boston No. 2	3.00 to 3.50
Chi., mach. net	6.50 to 7.00
Chi., railroad, net	6.00 to 6.50
Chicago, agri., net	5.25 to 5.75
Cinn., mach. cup.	7.00 to 7.50
Cleve. cupola	7.00 to 8.00
Det., net deal.	6.50 to 7.00
E. Pa. cupola	9.00 to 9.50
N. Y., cup. deal.	5.50 to 6.50
N. Y., del. local foundries	8.00 to 8.50
Pitts., cupola	9.50 to 10.00
San Fran., del.	13.50 to 14.00
Seattle	4.50 to 6.50
St. L. No. 1 ma.	6.50 to 7.00
St. L., No. 1	6.00 to 6.50

HEAVY CAST

Boston, del.	4.00 to 4.25
Bost., mach. cast	7.00 to 7.50
Buffalo, break	6.50 to 7.00
Cleve., break	4.50 to 5.00
Detroit, auto, net deal.	7.00 to 7.50
Det., break., dl.	5.00 to 5.50
Eastern Pa.	8.50 to 9.00
N. Y. No. 1, dl.	5.00 to 5.50
N. Y. break, dl.	4.75 to 5.25
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston Consum.	7.50 to 8.00
Buffalo	8.00 to 8.50
Chicago, agri.	5.00 to 5.50
Chicago, R. R.	6.50 to 7.00
Cinci., R. R., del.	7.50 to 8.00
Cinci., agri. del.	7.00 to 7.50
Cleveland, rail	7.50 to 8.00
Det. auto deal.	5.00 to 5.50
St. Louis, rail	4.50 to 5.00

RAILS FOR ROLLING

5 feet and over

Birmingham	7.50 to 7.75
Boston, deal.	5.00 to 5.50
Buffalo	7.00 to 7.50
Chicago	8.25 to 8.75
Eastern Pa.	9.50
New York dealer	4.25 to 4.75
St. Louis	7.25 to 7.75

LOCOMOTIVE TIRES

Chicago, cut	7.00 to 7.50
St. L., No. 1	5.00 to 5.50

LOW PHOS. PUNCHINGS

Chicago	7.50 to 8.00
Buffalo	9.00 to 9.50
Eastern Pa.	9.50 to 10.00
Pittsburgh	10.75 to 11.25

ment outside New England. Some prices are nominal and supplies are not excessive.

New York—While buying in most grades of scrap is light, some stove plate has moved to Harrisburg at $6.75, delivered, the same mill paying $7, delivered, for unstripped automobile motors. The Phoenixville mill has not been taking shipments and most eastern consumers are either out of the market or taking small lots.

Philadelphia—Approximately 2500 tons of unprepared steel scrap has been purchased for Bethlehem, Pa., at a price said to check back to a basis of $6 a ton, delivered, for prepared material. However, this has not affected as yet the local district spread of $7 to $7.50, delivered, on No. 1 steel. In fact all grades appear unchanged.

Buffalo—Only the probability of an early purchase of a tonnage of heavy melting steel for a large consumer here appears as a cheering factor. Spot demand is slow and shipments are again being held up by recent purchasers. The nominal prices are firm, with some dealers asking 25 to 50 cents more for some materials than current quotations indicate is the going value.

Pittsburgh—Sale of a round tonnage of heavy melting steel to a consumer at Donora, Pa., at $9.50 establishes the nominal range of $9 to $9.50. Hydraulic compressed sheets are offered at $9.25 at the same point.

It is believed that the former top of $10 is out, in view of willingness of brokers to take orders for a leading consumer at somewhat less than the prices applying about mid-September. On bids to close Nov. 2, Pennsylvania railroad will sell 10,600 tons of No. 1 heavy melting steel, 3000 tons of uncut structural and 10,500 tons of bent and straight rails. The total list is fairly large.

Cleveland—Dullness holds quotations at a standstill. Buying is limited. Intimations appear that further slight weakness is likely to develop before further buying of heavier grades is done for November needs, and some confirmation of this comes from Youngstown and Pittsburgh. Shipments to consuming industries are restricted.

Detroit—Iron and steel scrap is in a waiting mood. As production of new models gets under way, output of scrap will increase and November should show a substantial gain over October in this respect. Prices are not so firm as a short time ago but in the absence of sales the level is unchanged.

Cincinnati — Prices of iron and steel scrap are softer, with the edge off buying interest aroused a month ago. Quotations, however, are unchanged and a steady demand for some grades is apparent. One important consumer lifted a temporary embargo and is again taking a limited tonnage.

St. Louis—Apathy in iron and steel scrap is being reflected in an easier tone though quotably prices for the most part are unchanged. The only sale of any size heard of the past several days was a round tonnage of steel to an east side mill. Small lots for prompt shipment are being made, but tonnage involved is not impressive.

Birmingham, Ala.—Prices of steel and iron scrap are firm, with ample supplies. Heavy melting steel is the only grade moving, and this in small lots.

Toronto, Ont.—Iron and steel scrap sales again show improvement. No. 1 machinery cast is still the most active, with dealers offering $9 to $10 per net ton. A better demand has appeared recently for rails and car wheels and Montreal interests are selling some heavy melting steel.

Forging Billets Are Reduced $2 a Ton

SEMIFINISHED PRICES PAGE 44

Forging billets have been reduced $2 a ton to $31 base, Pittsburgh, a price which realigns the semifinished steel market on the $5 differential between sheet bars, slabs and other billets as against forging billets. Sales in all semifinished materials are light, with this price announcement causing little change in demand. Wire rods are $37.

Equipment

Situation Shows Little Change —Few Inquiries Are Pending

Pittsburgh—Fretz-Moon Tube Co., Butler, Pa., has awarded a contract to the Rust Engineering Co., Pittsburgh, for a $50,000 addition to its Butler plant. Purchase of equipment appears remote as the space will be used for storing and handling materials. Action on the American Sheet & Tin Plate Co.'s rolling mill inquiry will be deferred until at least the second week of November, although indications are prevalent pointing to award of the business. A large steelworks has engaged a group of efficiency engineers to undertake a study of its Valley plant with the view to rearranging plant facilities. Steel mill purchasing of either new equipment or rolls continues to be deferred. An electric revolving locomotive crane will be required for the roller type dam at London, W. Va., on which Dravo Contracting Co., Pittsburgh, is low bidder. Machine tool orders and inquiries have fallen off from a slight spurt which was noted in September.

New York — Awards are being made for machine tool equipment on which bids were taken by the navy recently. Improvement in general demand for tools is slow, although in spots there appears to be a better inquiry. Two connected companies in the east making twist drills, reamers, taps and dies are reported to have placed new machinery and equipment orders to the amount of $50,000.

Chicago—Activity in machine tools and plant equipment has improved moderately in that sales are more numerous and buyers are displaying greater willingness to discuss future purchases. Sales of individual items are in better volume. In the case of machine tools, low prices are an incentive to prompt sales and used equipment in a number of instances is being disposed of at extremely low figures. Demand for repair parts for various types of equipment is more active, although in most cases a similar trend also is noted in sales of new machines. One manufacturer of special recording instruments reports the first upturn in business this year, while business of a maker of drafting room supplies is running ahead of the total of a year ago.

Worcester, Mass.—Any improvement in machine tool inquiry or buying is spotty. Most shops are taking a few orders, one or two tools at a time, but outside one or two textile machinery plants, there has been no general improvement. Activity in grinding wheels is ahead of that in machine tool divisions. Bids close Nov. 15 on a gate shear for the Boston navy yard.

Cleveland — Equipment business here appears to be holding fairly well to the September level with orders well diversified but small. Most of the purchases seem to be for fill-in rather than replacement. No change in the situation appears imminent for the near future. Bids close Nov. 21 for two precision bench lathes for Wright Field, Dayton, O.

Pacific Coast

Reinforcing Bar Movement Best of Steel Products—Pending Work Offers Much Future Tonnage—Golden Gate Bridge Approaches and Cables Involve Much Steel—Some Pipe Let

San Francisco—(*By Air Mail*)—The reinforcing steel bar market was the most active the past week, over 1700 tons being placed. Following several weeks of rather heavy placements, demand has fallen off. Of special interest is opening of bids on over 7400 tons of cast iron pipe for Los Angeles, the United States Pipe & Foundry Co. being low on over 5000 tons. Prices, except reinforcing bars, are fairly firm.

California state highway commission placed 900 tons of reinforcing bars with unnamed interests. Truscon Steel Co. booked 303 tons for San Gabriel dam No. 2, Los Angeles county. Soule Steel Co. secured 200 tons for an aquatic park for San Francisco.

Structural interest continues to center around the award of approach spans for the Golden Gate bridge over San Francisco Bay, involving close to 10,000 tons, and on 28,000 tons of steel cable for the same project.

The Pacific States Cast Iron Pipe Co. took 200 tons of 2-inch pipe for Los Angeles, and C. G. Claussen & Co. Inc. booked 1200 tons of 4 to 8-inch pipe for the Suburban Water Co., San Francisco, for installation in the Santa Clara valley.

Seattle Sees Improvement

Seattle — Some improvement is noted in the Pacific Northwest iron and steel markets. Pacific Coast Steel Corp. reports a better tonnage this month than in September. Mill prices are firm at 2.00c for plates, 2.10c for structurals and bars and 2.40c for reinforcing bars.

Steel awards this week included 135 tons of reinforcing bars for four state bridges in Jackson county, Oreg., to unnamed interests. Curtis & Gordon, Portland, Oreg., have the general contract. Beall Pipe & Tank Co., Portland, will fabricate 7500 feet of 16-inch welded water pipe for Roseburg, Oreg., involving about 100 tons of plates, it is estimated.

Zollinger & Wheelwright, Rexburg, Idaho, are low bidders for a 180-foot concrete span to cross the Clearwater river, Idaho, tonnage unstated. Oliver S. Almlie, Merced, Calif., is low bidder for the Oregon City, Oreg., post office, involving 45 tons of reinforcing and 37 tons of structurals. Sheble Construction Co., Seattle, has the contract for the state bridge over Willapa river, Wash., 350 tons of structurals, 121 tons reinforcing and 50 tons machinery.

Steel in Europe

General Betterment Shown in Britain and Continent

London — (*By Radio*) — Extension of present 33 1/3 per cent tariff import rates on steel and iron products for two years, pending reorganization of the steel industry, has given more definiteness to the situation. Duties apply to imports from all countries outside the British Empire. They cover ingots and semifinished steel, except when made from pig iron smelted wholly with charcoal; bars, with the same exception; all sections, fabricated or not; forgings, castings, stampings over seven pounds; hoops, strip, except hot-rolled over 10 inches in coils over 300 pounds; plates and sheets; pig iron, except charcoal smelted.

Business remains quiet but export inquiries are expanding. Quotations are steady. Some Middlesbrough pig iron is being exported. More inquiries are coming to constructional engineers. Domestic prices on galvanized sheets have been increased. A locomotive order has been placed by Russia.

Continental reports show a definitely better situation and production is expanding. Germany is exporting bars and rods, especially to the Far East. France is selling steel rods to Algeria. It is reported Manchurian pig iron has been sold for delivery to Germany and Holland.

Conferences looking to renewal of the steel entente are expected to be called soon, obstacles by Belgian producers having been modified by recent developments. Hope is held of Great Britain becoming a party.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Oct. 27

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON		£ s d		£ s d
Foundry, 2.50-3.00 Silicon	$ 9.59	2 18 6	$8.76 to $9.25	1 16 0 to 1 18 0
Basic bessemer	8.86	2 14 0*	6.81	1 8 0
Hematite, Phos. .03-.05	9.68	2 19 0	.....	.....
SEMIFINISHED STEEL				
Billets	$15.99	4 17 6	$9.49	1 19 0
Wire rods, No. 5 gage	24.60	7 10 0	21.90	4 10 0
FINISHED STEEL				
Standard rails	$25.42	7 15 0	$26.77	5 10 0
Merchant bars	.89c	6 2 6	.57c to .58c	2 12 0 to 2 12 6
Structural shapes	1.08c	7 7 6	.48c to .49c	2 3 6 to 2 4 0
Plates, †¼ in. or 5 mm	1.28c	8 15 0	.66c	3 0 0
Sheets, black, 24 gage or 0.5 mm.	1.17c	8 0 0	1.21c to 1.24c	5 10 0 to 5 12 6
Sheets, gal., 24 gage, corr.	1.46c	10 0 0	1.51c	6 17 6
Bands and strips	1.13c	7 15 0	.69c to .72c	3 2 6 to 3 5 0
Plain wire, base	1.39c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.68c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.61c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	2.62	0 16 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

		£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$ 9.59	2 18 6	$ 8.06	205(2)	$ 8.34	300	$16.40	69
Basic bessemer pig iron	8.86	2 14 0*	6.68	170(1)	7.51	270	17.95	75.50
Furnace coke	1.97	0 12 0	4.87	124	3.48	125	4.56	19.20
Billets	16.40	5 0 0	14.54	370	10.43	375	22.94	96.50
Standard rails	1.20c	8 5 0	1.25c	697	1.50c	1,150	1.37c	127
Merchant bars	.97c	6 12 6	.95c	530	.60c	460	1.19c	110
Structural shapes	1.28c	8 15 0	.99c	550	.57c	435	1.16c	107.50
Plates, †¼-in. or 5 mm	1.31c	9 0 0	1.17c	650	.73c	560	1.37c	127
Sheets, black	1.20c	8 5 0§	1.44c	800‡	.85c	650‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.46c	10 0 0	2.83c	1,570	1.64c	1,260	4.00c	370
Plain wire	1.39c	9 10 0	2.03c	1,130	1.69c	1,300	1.92c	178
Bands and strips	1.39c	9 10 0	1.04c	580	.83c	640	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 6.25c, Conn., for copper

SHEETS	
Yellow brass (high)	12.50
Copper, hot rolled	15.37½
Lead sheets, cut, to jobbers	7.00
Zinc sheets (100-lb. base)	9.00
TUBES AND PIPES	
Seamless yellow brass (high)	15.25
Seamless copper	14.37½
RODS	
Yellow brass (high, full turning)	10.25
Naval brass	11.37½
ANODES	
Copper, untrimmed	12.25
WIRE	
Yellow brass (high)	12.50

Old Metals

Dealers' buying prices, cents lb. No. 1 Composition Red Brass

New York	2.75 to 3.00
Chicago	2.25 to 2.50
Cleveland	2.50 to 2.75
St. Louis	2.50
HEAVY YELLOW BRASS	
New York	1.87½ to 2.00
HEAVY COPPER AND WIRE	
New York	3.50 to 3.75
Chicago, No. 1	3.25 to 3.50
Cleveland	3.00 to 3.25
St. Louis	2.75
COMPOSITION BRASS BORINGS	
New York	2.50 to 2.75
YELLOW BRASS TUBING	
Cleveland	1.50 to 1.75
LIGHT COPPER	
New York	2.87½ to 3.00
Chicago	2.25 to 2.50
Cleveland	2.50 to 2.75
St. Louis	2.50
LIGHT BRASS	
Chicago	1.25 to 1.50
Cleveland	1.25 to 1.50
St. Louis	1.50
LEAD	
New York	2.00 to 2.25
St. Louis	2.00
ZINC	
New York	1.12½ to 1.25
Cleveland	1.00 to 1.12½
St. Louis	1.25
ALUMINUM	
Clippings, new, soft, Cleve.	9.00 to 10.00
Clippings, hard, Cleveland	7.50 to 8.50
Borings, Cleveland	3.00 to 3.50
Mixed cast, Cleveland	4.00 to 4.50
Mixed cast, St. Louis	3.00 to 3.25

Secondary Metals

Remelt aluminum No. 12	7.50 to 8.50
Brass ingot, 85-5-5-5	5.75

Metals

Copper Again Drops to Record Low Point—Tin Also Eases but Zinc and Lead Hold Unchanged

New York—Demand for all metals was quiet during the past week. Copper again reached the low point of last May. Weakness also developed in tin under the influence of a break in the sterling exchange rate. Antimony also eased somewhat but lead, zinc, aluminum and nickel showed little change.

Copper—A period of prolonged dullness in demand and growing accumulations of unsold metal led custom smelters of copper to cut their prices sharply in an effort to stimulate consumer interest. Electrolytic metal again was available from first-hand sellers at 5.25c, Connecticut, but buying failed to pick up measurably. Mine producers held their quotations to the basis of 6.25c but did no business at these levels. Consequently, rolled copper and brass products held unchanged as did copper wire. Scrap and secondary ingot, however, declined sharply. Copper also declined abroad to as low as 5.20c, c.i.f. European ports. The British 2-pence tariff is expected to go into effect Nov. 15.

Lead — Demand for lead was light but quotations showed little deviation from the recently prevailing levels of 2.90c, East St. Louis, and 3.00c, New York. Considerable buying remains to be done for November requirements. Sellers are expected to open their books for December business Tuesday.

Zinc—Prices generally lacked a test. Some sellers held prime western metal at 3.05c, East St. Louis, but sufficient to supply demand could be had at 3.00c. High-grade zinc held at 4.50c.

Antimony — Metal for spot and nearby delivery was available at 5.50c, duty paid. Buying interest lagged.

Tin—Quotations again approached the 23-cent level due to a drop in the British pound sterling rate to nearly the lowest level since Britain went off the gold standard. Previous to the break, sterling had been held fairly steady by support from the British treasury. Demand for tin in this country continued light despite lower prices.

Aluminum—Demand was light and prices remained unchanged.

Sulphate Price Up

New York—Sulphate of ammonia prices for November have been posted at a 50c increase, to $21.50 a ton, port, in bulk. Distillates are firm, due to low output, although demand is light. Some increase is noted for toluol. Little contracting has been done in naphthalene at the new prices.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.153 to 0.173

Per Pound at Producers' Plants

Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$1.0525

Quicksilver Steady

New York—Quicksilver prices are steady and fair sales have been reported. Ruling prices in the market are $49, a virgin flask of 76 pounds, for small lots, and $48 for round lots.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
Oct. 22	6.00	6.37½	5.75	23.80	23.85	3.00	2.90	3.00	22.90	5.62½	35.00
Oct. 24	5.62½	6.37½	5.37½	23.45	23.50	3.00	2.90	3.00	22.90	5.62½	35.00
Oct. 25	5.50	6.37½	5.25	23.45	23.50	3.00	2.90	3.00	22.90	5.50	35.00
Oct. 26	5.37½	6.37½	5.12½	23.25	23.35	3.00	2.90	3.00	22.90	5.50	35.00
Oct. 27	5.30	6.37½	5.05	23.30	23.40	3.00	2.90	3.00	22.90	5.50	35.00
Oct. 28	5.30	6.37½	5.05	23.30	23.40	3.00	2.90	3.00	22.90	5.50	35.00

STEEL, WROUGHT AND CAST IRON PIPE, AND TUBING

Welded Iron, Steel Pipe

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

Steel In.	Blk.	Gal.	Iron In.	Blk.	Gal
¼ & ⅜	57	34	½	28	10½
½	62	49½	¾	33	16½
¾	65½	55	1—1¼	36	20½
1—3	67½	57	2	38	21

LAP WELD

2	61	50½	2	26	12½
2½ to 6	64½	54	2½—3½	33	18½
8	62	51	4—6	35	22
10	60	49	7—8	34	21½
12	59	48	9—12	31	16½

BUTT WELD

Extra strong, plain ends

⅛	48	33	¼ & ⅜	+7	+41
¼ & ⅜	53½	38½	½	28	12½
½	59	49½	¾	33	17½
¾	63½	54	1—2	39	23

LAP WELD

Extra strong, plain ends

2	59	49½	2	34	18½
2½ to 4	62½	53	2½—4	39	25
5 & 6	62	52½	4½—6	38	24
8	58	47	7 & 8	36	22
10	51½	40½	9—12	26	13½
12	50½	39½			

STEEL LINE PIPE

2 to 3 butt	66½	2½ to 6 lap	63½
2 lap	60	8 lap	61
10 lap	59	12 lap	58

Discounts on steel pipe are net and not subject to any point or preferential. On iron pipe, the discounts shown on the cards are net, and are not subject to any further discounts or preferentials.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to two 5 per cent supplementary discounts for carloads. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 43.40 to 44.40
Six to 24-inch, Chicago..... 40.40 to 41.40
Six-inch and over, N. Y... 32.00 to 34.50
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore*	2.35c
Boston	3.25c
Buffalo	2.95c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	3.30c
New York‡(d)	3.10c
Philadelphia..	2.45c
Pittsburgh	2.60c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	2.35c
Boston	3.25c
Buffalo	3.15c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia..	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga..	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl...	2.10c
Los Ang., lcl	2.40c
New York....	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.50c
San Fran. lcl	2.80c
Seattle	3.00c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore*	2.35c
Boston	3.35c
Buffalo	3.20c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.30c
New York(d)	3.10c
Philadelphia..	2.45c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore*	2.35c
Boston	3.35c
Buffalo	3.20c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles..	3.30c
New York(d)	3.30c
Philadelphia..	2.45c
Phila. floor....	5.10c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore*	2.80c
Boston	3.50c
Buffalo	3.45c
Chattanooga..	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.60c
N. Y.	3.00c
Portland	4.00c
Phila.*† (e)....	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	3.70c
Chattanooga..	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York ..	3.75c-4.00c
Phila.*†(e) ..	3.40c
Pitts.**	3.40c
Portland	4.50c
San Fran.	3.90c
Seattle	4.50c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.05c
Chattanooga..	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	3.75c
Houston	4.25c
Los. Ang.	4.50c
New York...4.00c-4.10c	
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	5.00c
San. Fran.	4.55c
Seattle	5.00c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

†BANDS

Baltimore	2.65c
Boston	3.75c
Buffalo	3.30c
Chattanooga..	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter....	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia..	2.75c
Pittsburgh	2.95c
Portland	3.85c
San Fran.	3.15c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

†HOOPS

Baltimore	2.65c
Boston	4.90c
Buffalo	3.95c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.65c
Det. No. 14 & lighter....	3.30c
New York	3.30c
Philadelphia..	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	3.75c

†New extras apply.

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)*	3.48c
Boston	3.60c
Buffalo	3.00c
Chattanooga*	3.68c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York	3.39c
Philadelphia*	3.35c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran. (d)(f)	5.55c
Seattle (a)....	4.50c
St. Paul (a)..	3.20c
St. Louis	3.36c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (b)...	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c).....	4.55c
New York	4.55c

(a) Rounds, hex. only.
(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
(f) Rounds only.
‡Domestic bars.
*Plus quan. extras.
**Less than 25 sheets.
*†50 or more bundles.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

EAST HARTFORD, CONN.—Texas Co., Ensign street, has awarded two steel tanks of 17,100 barrels capacity to Petroleum Iron Works, Sharon, Pa.

MIDDLETOWN, CONN.—Valley Oil Co., Bridge street, has awarded three steel tanks with 1,500,000 gallons capacity to the Chicago Bridge & Iron Works, 37 West Van Buren street, Chicago.

New York

AMITYVILLE, N. Y.—Full Combustion Coal Burner Corp. has been incorporated with $10,000 capital to manufacture combustion equipment, by D. J. DeAndres, 1036 Bedford avenue, Brooklyn, N. Y.

BUFFALO—Flameless Heater Corp. has been incorporated with $100,000 capital to manufacture heating devices, by C. B. Moulthrop, Buffalo.

BROOKLYN, N. Y.—General Can Co. has been incorporated with 200 shares no par value to manufacture containers, by L. S. Aldrich, 321 West Forty-fourth street, New York.

NEW YORK—Crescent Metal Products has been incorporated with 200 shares no par value by H. L. Jessop, 9 East Fortieth street, New York.

NEW YORK — Track Maintenance Corp. has been incorporated with $10,000 capital to manufacture railway equipment, by J. F. Finkelstein, 38 Park Row, New York.

NEW YORK—Sterling Heating & Ventilating Co. has been incorporated with $10,000 capital to manufacture heating devices, by J. B. McCloskey, 44 Court street, Brooklyn, N. Y.

ROCHESTER, N. Y.—New York Central Electric Co., 89 East avenue, plans construction of a gas plant and mains at Savona, Steuben county, N. Y., to cost about $40,000.

New Jersey

HIGHLAND PARK, N. J.—New Brunswick Roofing & Cornice Works has been incorporated with 10 shares no par value to conduct a sheet-metal business, by Edmund A. Hayes, New Brunswick, N. J.

NEWARK, N. J.—Friedberg Inc. has been incorporated with eight shares no par value to manufacture sheet metal products, by Herman E. Dultz, Newark, N. J.

NEWARK, N. J.—Keen Blade Corp. has been incorporated with 1000 shares no par value to manufacture razor blades, by Fraser, Hiett, Wall & Effler, Toledo, O.

TRENTON, N. J.—John A. Roebling's Sons Co., William A. Anderson vice president, announces it will build a wire-manufacturing plant in San Francisco if awarded the contract for cable for the Golden Gate bridge on its low bid of $5,855,000.

Pennsylvania

PHILADELPHIA—A permit has been granted to Frank G. Stewart, 1520 Locust street for erection of a plant costing $150,000 for the Keystone Lubricating Co.

PHILADELPHIA — Department of city transit, C. C. Davis director, city hall annex, is purchasing equipment for the South Broad street subway, including track, powerfeed rails, signal system, power substation, electric wiring and similar equipment, to a total cost of $1,000,000.

PHILADELPHIA—Sharples Solvents Corp., Westmoreland avenue and Twenty-third street, has started construction of a 1-story plant for manufacture of amyl alcohol for lacquer manufacture on Pennsylvania avenue, Wyandotte, Mich. Contract to Michigan Foundation Co. Inc., 110 West Jefferson avenue, Trenton, Mich. Cost is estimated at $50,000.

Ohio

AKRON—Palmer Match Co., T. A. Palmer vice president, will build at once a $300,000 plant to double capacity of present facilities.

CLEVELAND — Peninsular Grader Blade Co. has been incorporated to manufacture highway machinery, with 250 shares no par value, by Krieg,

Here and There in Industry

(*Concluded from Page* 16)

central Indiana. It will handle the complete line of partitions made by the Cleveland company.

□ □ □

Frank H. Robinson Inc., Pittsburgh, ornamental structural steel and iron fabricator, has been placed in receivership by equity suit brought by the Chase Foundry & Mfg. Co., Columbus, O., on a claim of $3800. R. H. Coleman has been appointed receiver.

□ □ □

American Petrometal Corp., 33 West Forty-second street, New York, importer of iron and steel, has established a warehouse at First avenue and Fifty-eighth street, Brooklyn, N. Y. The building is the forge shop of the former Morse Dry Dock & Repair Co. The company sells only to jobbers.

□ □ □

Marlin-Rockwell Corp., Jamestown, N. Y., has consolidated the sales activities of its subsidiaries, Gurney Ball Bearing division, Jamestown, N. Y.; Standard Steel & Bearings Inc., Plainville, Conn.; Strom Bearings Co., Chicago. Eastern district sales office has been eseablished at Plainville, Conn., and western district sales office at 2526 South Michigan boulevard, Chicago. Branch sales offices will be continued at Detroit, Cincinnati, Cleveland, Los Angeles and San Francisco. A new branch sales office has been opened at 40 West Sixty-third street, New York.

□ □ □

Woodward Iron Co., Woodward, Ala., has ordered from Freyn Engineering Co., Chicago, four Freyn-design pressure burners for installation on hot-blast stoves at its No. 1 blast furnace at Woodward. The Freyn company has also received an order from the Tata Iron & Steel Co., Jamshedpur, India, for three electric roll heaters, the second order from this user, making a total of four in use at its plant.

□ □ □

Thomson-Gibb Electric Welding Co., Lynn, Mass., and Bay City, Mich., has added a department for the manufacture of a complete line of wire mill and stranding machinery. The new products will include wire drawing machinery, pointers, take-up frames, planetary, rigid type and high speed stranders for wire rope and electric cables, cable armoring and saturating equipment; steel, paper and rubberized taping machines and heads and electric brazing machines. A. R. Petterson, formerly with the American Steel & Wire Co. and also formerly chief engineer for the New England Wire Machinery Co., will have charge of sales and engineering work.

HEADING SPECIALISTS

Special screws of great variety made to order

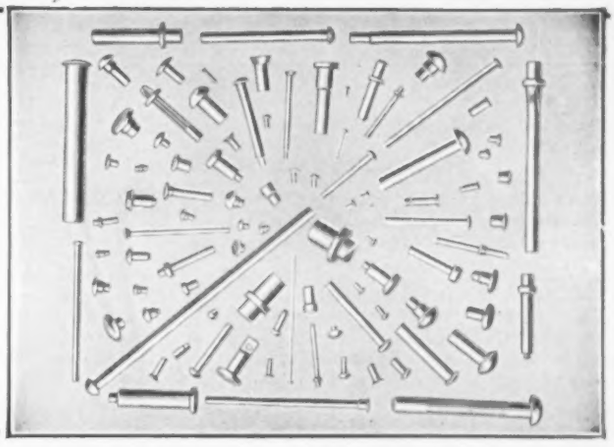
Quality rivets and studs from all grades of materials to order only for other manufacturers.

Progressive Manufactured Products are made on both a quality and price basis, their uniformity of construction insures you against slowing down in your assembly operation.

Manufacturers learn to admire business concerns for what they are and what they do, a great many parts now made on screw machines lend themselves to heading which results in great savings and improved service. Have our specialists consult with you, our service is free and we might suggest something that may prove of considerable importance to you.

The Progressive Manufacturing Company
TORRINGTON, CONN., U. S. A.

IN STOCK AT ALL TIMES—
Standard Machine Screws
Machine Screw Nuts
Interchangeable bolts and nuts made strictly to A.S.M.E. tolerances.



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PHOENIX STEEL ROLLS
PHOENIX CHILL ROLLS
PHOENIX SAND ROLLS

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Buffalo—Detroit—Susquehanna

GRADES:
Foundry—Malleable
Silvery—Ferro-Silicon

The HANNA FURNACE CORP.
MERCHANT PIG IRON DIVISION
OF NATIONAL STEEL CORP.
Buffalo, New York Detroit, Mich
New York Philadelphia Boston

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Of any kind. in any gauge, made and shipped promptly. We also manufacture perforated Steel for Machinery Guards and carry a stock of perforated Steel. Write for our booklet.

ERDLE PERFORATING CO.
ROCHESTER NEW YORK

Sammon & Stendel, 300 Engineers building, Cleveland.

CLEVELAND—Lockport Lead Co. of Cleveland has been incorporated with 750 shares no par value, by J. C. Calhoun Jr., 830 Williamson building, Cleveland.

CLEVELAND — Grasselli Chemical Co., Guardian builidng, has awarded a contract to the Hunkin-Conkey Construction Co., Cleveland, for a 3-story experimental laboratory, 50 x 60 feet, to cost about $40,000.

DEFIANCE, O.—Pressed Steel Products Co., Napoleon, O., Saturn Electric Water Heater Co., Bryan, O., and Milwaukee Tool & Forge Co., Milwaukee, have been merged and will start a new plant in Defiance for the manufacture of tools, electric heaters and pole line hardware. (Noted Oct. 10).

SPRINGFIELD—Receiver's sale has been ordered of the assets of the Springfield Malleable Iron Co., Ralph E. Weadon receiver.

Indiana

ANDERSON, IND.—Anderson Stove Co. has given a substantial contract for stove castings to the Anderson Engine & Foundry Co., its own foundry being unable to meet demands of present sales. Its full force is on full time six days a week.

MUNCIE, IND.—Acme Machine Products Co. Inc. has been incorporated with $161,580 preferred stock and 16,158 shares no par value, by Joseph H. Broderick, Earl A. Munger and Frank B. Bernard.

Illinois

CHICAGO—Diros Tool Co. Inc., 5712 Maryland avenue, has been incorporated with $5000 capital to manufacture tools and hardware, by Frederick W. Moore, 105 West Adams street.

CHICAGO—Milbach Service Co., 2614 South Kedvale avenue, has been incorporated with $15,000 capital to carry on a general machine business, by Frank J. Roha, 3856 West Twenty-sixth street.

CHICAGO—Alloy Steel Gear & Pinion Co., 4847 West Division street, has been incorporated with $30,000 capital to manufacture gears and machinery, by Mannion, Mannion & Mannion, 160 North LaSalle street.

CHICAGO—Miller Iron & Metal Co., 1508 North Noble street, has been incorporated with $25,000 capital to carry on a scrap iron and metal business, by Joseph W. Hyman, 1525 North Crawford avenue.

CHICAGO—Buckley Mfg. Co., 2158 Washington boulevard, has been incorporated with $60,000 capital to manufacture mechanical devices and toys, by Parker, McKeen & Clusman, 308 West Washington street.

FREEPORT, ILL.—Empire Machine Corp. 107½ South Walnut street, has been incorporated with $3000 capital to deal in vending machines, by Clifford A. Pedderson, Rockford, Ill.

Southern States

WASHINGTON—Bureau of supplies and accounts, navy department, will open bids as follows: Nov. 1, schedule 8845, one crawler tractor for Great Lakes, Ill.; Nov. 8, schedule 8964, one motor-driven inclinable notching press for Norfolk, Va., schedule 8965, one arc welding set and spare parts for Brooklyn, N. Y., schedule 8967, one motor-driven automatic screw machine for Newport, R. I., schedule 8958, one motor-driven cutoff saw for Mountain View, Calif., schedule 8982, one truck crane for Sewall's Point, Va.; Nov. 15, schedule 8974, one motor-driven, self-contained internal grinder for Puget Sound, Wash., schedule 8963, one motor-driven double head bolt threading machine for Puget Sound, Wash., schedule 8966, one motor-driven cutoff saw for Puget Sound, Wash., schedule 8976, one motor-driven gate shear for Boston.

JACKSONVILLE, FLA. — Southern Engineering & Management Corp. plans to build gas plants and distribution systems in Melbourne, Eau Gallie and other towns in Florida, costing about $40,000.

HAGERSTOWN, MD. — Pangborn Corp. has let a contract to Rust Engineering Co., Koppers building, Pittsburgh, for a $100,000 addition to its pattern storage building.

CHATTANOOGA, TENN. — Lookout Oil & Refining Co., R. E. Biggers, general manager, Kirkland avenue, a subsidiary of Armour & Co., Chicago, plans a plant to manufacture a baking compound, estimated cost $250,000.

Oklahoma

BARTLESVILLE, OKLA. — Indian Territory Illuminating Oil Co. plans to erect a casing-head gasoline plant to cost about $30,000.

OKLAHOMA CITY, OKLA.—Champion Refining Co., Enid, Okla., is planning to lay a 6-inch pipe line 1700 feet long from O'Connor, Okla., east, to cost $20,000.

OKLAHOMA CITY, OKLA.—Marion Oil Corp., First National Bank building, is having plans made for a 16,000-foot 6-inch oil pipeline in the field east of here, at a cost of $20,000. H. W. King, First National Bank building, is engineer.

Wisconsin

BELOIT, WIS.—Fairbanks, Morse & Co. has started production in its main plant here of a line of automatic stokers, bringing its employment to 1000 men, the average for the past three years.

BURLINGTON, WIS. — Agner-Simplex Co. has been organized by R. C. Agner to manufacture a special automobile wrench. An initial order for 60,000 is in production for a mailorder house. Nineteen sizes are provided, to fit all sizes of automobiles and trucks.

OSHKOSH, WIS.—A. H. Schmidt, secretary of the board of public works, has taken bids for two new sewage pumping stations, requiring one 1,500,000, two 3,000,000, one 5,000,000 and one 10,000,000-gallons per day sewage pumps and two 150-gallons per minute sump pumps, all with electric motor drive.

Pacific Coast

SAN BRUNO, CALIF. — American Brake Shoe Co., 74 New Montgomery street, San Francisco, is having plans made for a factory here, to cost $50,000, for erection in 1933.

SAN FRANCISCO — State harbor commission, F. White, Ferry building, chief engineer, is extending the Belt Line railroad, state operated, across the Third street bridge into the industrial district, at a cost of $500,000.

PORTLAND, OREG.—Plans for a proposed union station here have been rejcted by the nine railroads involved, on the ground the expense is not justified by the service resulting.

PORTLAND, OREG. — Claussen & Claussen, architects, have completed plans for a concrete creamery building for the Dairy Co-operative association, East Twelfth and Main streets and bids will be taken in November. Machinery to cost $70,000 will be installed.

ST. HELENS, OREG.—A proposition has been made to the city by Leon B. Jones of the Utilities Co. Inc., San Francisco, for a diesel engine electric power plant for the city. Cost is estimated at $233,800.

Dominion of Canada

FERNIE, B. C.—City council has endorsed the proposal of the Flathead Paper Co. Ltd. to build a pulp and paper plant here and has asked the government to guarantee 5½ per cent interest on an issue of $500,000 in 10-year bonds.

VANCOUVER, B. C.—Greater Vancouver water district has decided to construct a 60-inch connecting water line early in 1933 and another steel pipeline extension to cost $128,000.

VICTORIA, B. C.—A proposal is under discussion for buying the plant of the British Columbia Co. at the end of its lease of watershed rights and the city then to supply its own power. M. F. Hunter is city clerk.

SANDWICH, ONT. — Charles Van Slambrouck, 1740 Dougall avenue, has applied for permission to build a coal dock at the foot of California avenue.

SARNIA, ONT.—A movement is on foot to build a vehicular tunnel under Detroit river to Port Huron, Mich. Leseuer, Leseuer & Dawson, Sarnia, are solicitors for the applicants for permission.

SARNIA, ONT.—National Blue Flame Burner Co. Ltd. has been incorporated with 4000 shares no par value to manufacture furnaces, stoves and heaters, by Norman L. LeSueur, Toronto.